

ANDRÉE

The Record of
A Tragic Adventure

GEORGE PALMER PUTNAM

911 Franklin

WITHDRAWN



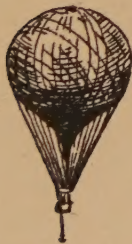
A. A. Moore.

Photograph American-Swedish News Exchange

Andrée

The Record of a Tragic Adventure

by George Palmer Putnam



BREWER & WARREN, INC.

New York 1930

70841

Copyright, 1930, by George Palmer Putnam

First Printing

Dedicated to
A Favorite Aeronaut
about to embark
on new adventures

Foreword

The complete story of Andrée never will be written. Only Andrée himself could have done that.

Whoever else sets down the record, be he casual biographer or painstaking historian, can at best but create a picture which fits the facts as he sees them.

This little book does not pretend to be a final record either of the life or the great adventure of the gallant Swede. It is, at best, a preliminary picture of a quixotic undertaking and the genuinely unusual man behind it. For Andrée, entirely aside from his attainments and ambitions as an aeronaut and an explorer, was a remarkably interesting human being, a character unto himself. If these pages, hastily compiled, have caught something of that character, and of the psychological problems which Andrée's nature,

actions and environment forced upon him, they will have served their purpose.

Particularly I wish to record my gratitude to my old friend Naboth Hedin, whose able assistance has meant so much in preparing the background of this book. Himself born in Sweden, and a capable American-trained writer, he probably has better contact with Andrée sources than any one else on this side of the Atlantic. And in sharing this knowledge he has been most generous.

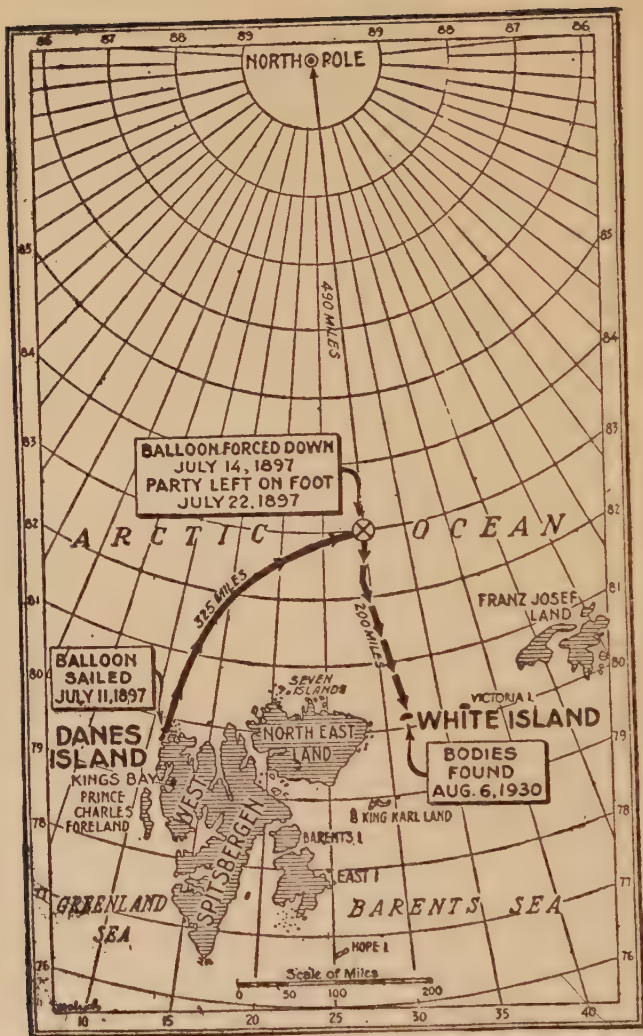
G. P. P.

Contents

1.	
"The Wind Is from the South!"	11
2.	
Andrée in America	29
3.	
The Man and His Background	46
4.	
Andrée's Companions	73
5.	
The Pole by Air! Great Plans	85
6.	
Preparation	124
7.	
The Abandoned Effort	141
8.	
1897	158
9.	
"Where Is Andrée?"	174
10.	
Thirty-three Years Later	199
11.	
The Tragic Records	222

Andrée

The Record of a Tragic Adventure



Reproduced by courtesy of
The New York Times

1

"The Wind Is from the South!"

"DON'T be uneasy if you receive no news from me for a year, and possibly not until the following year."

That was the last admonition of Salomon August Andrée, as he took off in his balloon from Danes Island, Spitzbergen, questing the North Pole. With him were Knut Fraenkel and Nils Strindberg, modern Swedish Vikings like himself.

It was the afternoon of July 11, 1897. As the "Eagle," freed from its moorings, rose in the Arctic air, Andrée leaned out of the gondola, waving farewell to his friends. "Greet Old Sweden," he shouted. "Long Live Andrée," replied those on the ground.

A wind puff from the west drove the balloon against the wall opposite. A corner post made a deep dent in it.

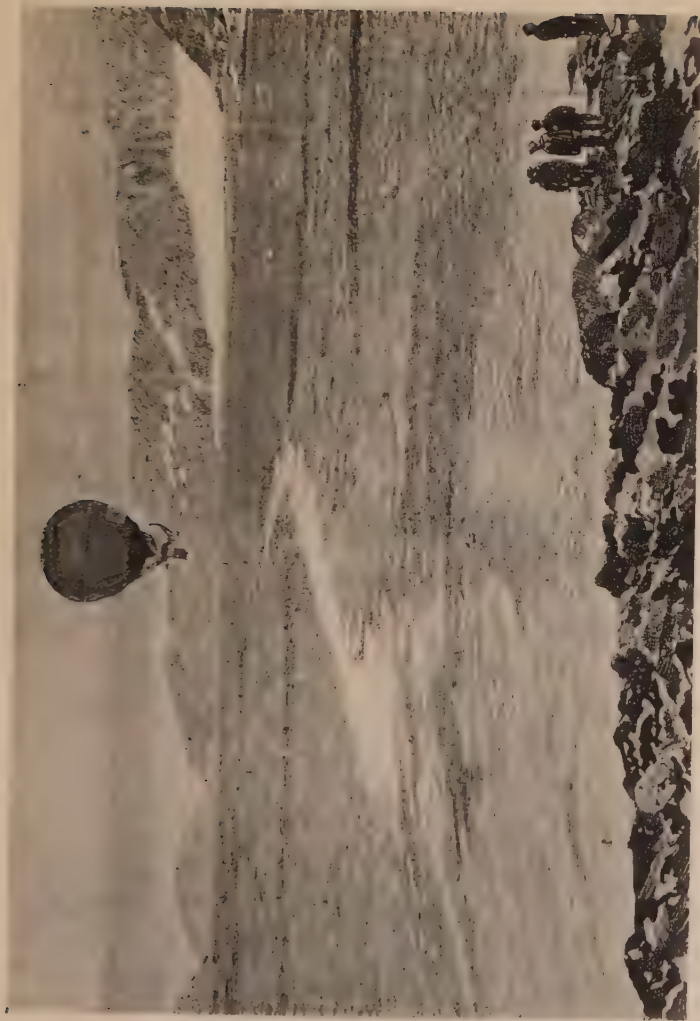
"What was that?" he cried. Those were the last words ever heard from the leader's lips by others than his companions in the flight—a flight

which ended a few days later, when the bag was forced down, possibly from the weight of ice forming on its surface, perhaps less than 200 miles from its starting point. A flight whose secret monument, the bones of three brave men stricken at their last camp, the Arctic kept hidden for thirty-three years.

No "flying machines," no radio, in those days, remember. The Arctic explorer, once beyond the rim of civilization, dropped from sight and sound until he returned again—if he did return.

Progress then was by ship and sledge and foot. Miles-a-day, not miles-a-minute, determined geographical advance. The transport and communication marvels of the close-knit modern world were fantasies of some fabulous future. "I could no more do that than fly" was a phrase still with meaning.

From 1930 with its polar, Atlantic, dirigible and endurance flights, with radio-telephone and television and all the rest of it, how hard it is to look back to the leisurely closing years of the last century! And, in a way, how hard to realize



The last view of the "Ornen."

Photograph from Time-Wide World photos

what a sensation Andrée caused when he proposed to go by balloon to the North Pole! At that time such a suggestion sounded far more mad than, for instance, Sir Hubert Wilkins' project of proceeding across the Pole (or at least beneath the Polar Sea) in a submarine—a plan likely enough to become reality in 1931.

It was 1897. The Klondike rush was in full swing. Queen Victoria was celebrating her Diamond Jubilee. The Channel was unswum, the Boer and Spanish-American wars unfought, the World War unthinkable. Automobiles were an experiment, radio undreamt of. No heavier than air machine had left the ground. Women did not vote or smoke. William McKinley was in the White House.

And S. A. Andrée of Sweden, with his balloon, was at Spitzbergen, those Arctic islands north of the North Cape and east of Greenland, then as now the most accessible gateway to the Polar regions.

First awake that July morning was Strindberg, the youngest of the three, and, in the way

of youth, the most eager for the great adventure. At twenty-four, any action is preferable to delay. Nils Strindberg was weary of waiting.

The explorers and their friends had slept on the "Svensksund," the Swedish gunboat lying at anchor in the harbor. Through the porthole Strindberg saw the good south wind whipping the grey water into tumbling white-caps. Leaning out he felt the pressure of it on his face. What a welcome wind! The want of it had kept them idle for ten trying days since the final preparations had been completed for the second time.

"Wake up!"

Axel Stake, the expedition's chemist, rubbed his eyes as Strindberg aroused him.

"The breeze! The breeze! We shall start to-day. *The wind is from the south!*"

Those, they say, were his actual words. Quickly the people of the "Svensksund" came fully awake. It was the great day of departure. Glorious! There at hand was the balloon, ready, after all those years of work and waiting and heartache. On board was all the equipment, a marvel, 'twas believed, of efficient forethought. All plans made,

all potentialities rehearsed. Truly they were ready, waiting only for that wind which must come from the south.

The wind, of course, held their fate in its wings. Locomotion of the balloon depended upon it, and it alone. There were no engines, no propellers in those days, and no way to steer a course other than full to leeward—movement was primarily a matter of drift, as the whims of the air currents dictated. What might happen lay in the lap of the gods. Seven hundred and fifty miles separated Spitzbergen from the Pole; if the voyage held straight on, perhaps another thousand miles would see them in the Behring Strait region. To get to the Pole and back again to land at almost any point of the compass meant at least 1500 miles in the air, and to win every foot of that long way the breeze must blow astern.

No wonder critics shook their heads at Andrée's optimism! The more so as the maximum time the gallant Swede himself hoped to be able to keep his balloon airworthy was thirty days. Others, among his helpers, thought at best it could retain enough lifting gas to stay aloft not

more than fifteen days, while the trip across the Polar Sea to Alaska would take at least 12 days. How tragically slender were the safety margins!

Would they actually start? As the morning wore on the leader's hesitation became increasingly apparent. True, the wind in the bay was brisk; but would it hold? Was it strong ashore, and to the north? Was it constant, or merely a southern whimsy beckoning to destruction?

The barometer was slowly rising, indicating fair weather, and as early as three A.M. the mirror-like surface of Virgo Bay had begun to ripple in the south breeze. By four o'clock the wind had gained in force and occasionally it blew quite hard. Overhead the clouds had begun to scud northward and their speed indicated stronger currents higher up. Two weather-wise Norwegian fishing smacks arrived in the bay apparently seeking shelter from an expected blow.

Andrée had slept well, despite the constant daylight, and when he was aroused early in the morning Strindberg said to him, "Now we have as good wind as we are ever likely to get and the balloon will never be any tighter than it is, no

matter how much we patch it. We might as well start."

Andrée did not make a definite reply, but went ashore alone. He soon came back and announced at eight o'clock that he wanted an hour for thought, but that in the meantime the final packing of personal effects should be finished and the last letters written. The sky kept on clearing so that by nine it was cloudless in the north while in the south the scud tore across the sky at greater and greater speed. On the ground the wind varied from fifteen to thirty feet a second but higher up was obviously stronger. Its only drawback was its puffy character.

Still uncertain about the departure, Andrée assembled his men for a conference on shore in the hangar itself. The wind kept gaining in strength and the frail wooden shed rocked, while the bulging balloon strained at the ropes and thumped against the walls, seeming eager to be off.

First Andrée asked the opinion of the Frenchman, Alexis Machuron, son-in-law and representative of Henri Lachambre, Paris maker of the balloon.

“Provided the ascension can be achieved,” he said with typical Gallic caution, “I believe the moment is favorable.” Once the balloon got into the air, his responsibility was over.

Next Strindberg and the alternate, Lieutenant Svedenborg, who is still living, were asked their opinion and both agreed that since the wind at sea was not too strong, the risk in getting the balloon out of the hangar had to be taken. If all circumstances had been favorable for the initial ascension, the wind would be too weak for the trip. They therefore voted for an immediate start.

“I don’t like the wind puffs at the mountain side,” said Knut Fraenkel, the vigorous athlete and out of doors man, “but I won’t vote ‘no’ because once we get off the most dangerous moment is over.”

Andrée said nothing. He looked at his young friends whose lives were in his hands and uneasily he scanned the horizon.

“Let us get back to the ‘Svensksund,’ ” he commanded.

While the row boat was in the water, he looked around the sky once more and then he announced:

“At half past two we start.” It was then twenty minutes of eleven.

On board the “Svensksund” the crew had just attended the obligatory religious service and at the order to start they at once donned their working clothes and started for the shore. At 11:00 they had begun to take down the northern wall of the hangar.

Andrée remained on board to write his final messages. He had no wife, no sweetheart. Matrimony and exploration do not mix, he had decided. His mother’s funeral he had attended but two weeks before leaving home. He therefore wrote the following message, as agreed, to a Stockholm daily, “Aftonbladet,” to which all later communications were to be sent.

Virgo Harbor
Sunday, July 11

“In accordance with our previously announced decision, we have begun at 10:45 today the preparations for a start and are now ready to leave at 2:30 P.M.

“We will probably travel in a north-northeasterly direction and expect to get gradually

into regions with more favorable wind conditions than those which have prevailed here.

"In the name of all the participants I send the warmest greetings to our country and friends."

(Signed) ANDRÉE

To his king and financial backer, Oscar II, he wrote:

Virgo Harbor
Sunday, July 11
2:25 P.M.

"At the moment of departure the members of the polar expedition ask Your Majesty to accept their loyal greetings and warmest thanks.

(Signed) ANDRÉE"

To his brother and business representative, Captain Ernst Andrée, he wrote:

"Hearty greetings to all who are close to me. Thanks and farewell.

(Signed) ANDRÉE"

On that July morning in his heart did Andrée really want to go? Who knows? His sounder judgment, apparently, dictated a delay of further days, hoping for a steadier wind. He mistrusted the gusty blow from the south. And he too, of course, pondered what had happened the

previous summer, when the south wind never came.

Of the rare brand of courage of that 1896 abandonment Fridtjof Nansen spoke years later. At the time Nansen had just returned from his three years of polar drift in the "Fram," and had sent to Andrée helpful hints of his observations.

"Also I sent to him a letter," said Nansen, "in which I expressed the hope that as he had once had the courage to return when he saw conditions weren't favorable he would show the same courage again. He wrote back thanking me for the documents but declared that he would not be able to show that courage a second time."

Who can say whether it was supreme courage which started Andrée northward that morning or the half-admitted lack of courage that kept him from turning back?

As the day advances a heightening wind presses against the crude balloon house. It creaks and squeaks in all its joints. But through the other sounds Andrée's powerful voice could always be heard—sometimes inside, sometimes out, and often on top of the building through a mega-

phone. Quiet, purposeful, he was everywhere directing, encouraging, a leader guiding this final act of his life's ambition, the end of years of planning and of labor. What labor! Especially during those last months, when time for rest simply wasn't to be considered.

"Tell them nowadays I write to no one but my fiancée. There is no time." That was in a last letter of Strindberg's to his father.

The balloon tugs at its anchorage. Heavy clouds come tearing down from the mountain tops. One of the poles in the upper portion of the building is torn loose and falls menacingly toward the balloon. For it to pierce the bag means disaster. But quick hands clutch it in time and the danger is avoided.

In an hour's time the north wall of the house is partly removed by the workers. The strength and the weight of every man there is required to manage the balloon. The "Eagle" feels the lifting strength of the gas and seems eager to be off.

Finally all that remains to be done is to attach the car, a difficult task as the balloon sways madly. At last all is done. The gondola is secured,

the guide ropes rigged, the instruments put in place. The ingenious cooking contrivance is on board, a sort of flying stove which is to be let down below the gondola so that danger of fire is removed so far as possible from the inflammable gas of the balloon itself.

Then the final checking of supplies. There was food for $3\frac{1}{2}$ months; "concentrated nourishment, these," said Andrée of the bullets for their rifles. (In his diary later we read of polar bears as "wandering butcher shops"). . . . Very special lemon lozenges, "sure preventive of scurvy"—something new, then, in Arctic equipment . . . fifty-five pounds of chocolate cakes, combined with pulverized pemmican, an innovation gleaned from Nansen. . . . Thirty-six homing pigeons in two-deck wicker cages. . . . A fur sleeping bag in the lower basket, where one man in a snug compartment was to rest while others were on watch . . . rifles, clothing, instruments, two sleds and a canvas boat, medicines.

Also there were two magazine articles written by Andrée, one describing the attempted start of the year before and the other the plan of the

flight, torn from Swedish periodicals. Who knew what speechmaking might be required, following a landing in some far community?

Of liquor they took "a considerable quantity, chiefly in the form of wine," to use Andrée's own words, "the place of honor going to two bottles of Port, vintage 1873, the gift of His Majesty the King." The cargo included no tobacco; none of the three men smoked.

And a white dress necktie . . . thirty-three years later that was found carefully preserved among the papers of the dead explorer.

At two-thirty all is ready.

Andrée makes a final trip of inspection around the hangar and the balloon itself.

He sees nothing more to do. It is time for separation between those who are going and those who remain. Andrée shakes hands with the group, ending with Captain Ehrensvärd of the "Svensksund" to whom he entrusts the final telegrams. Fraenkel shows perfect self-control. The hardy railroad builder has no nerves.

Strindberg, the university trained scientist, seems more affected, perhaps he thinks of the fiancée he has left behind, and seeks out the young

French balloon constructor, Machuron, who also has a girl awaiting him at home. To him he entrusts the last letter to Anna Charlier in Stockholm and asks him to send her copies of the photographs he is preparing to take of the ascension.

There are no speeches. The silent handclasps tell enough. Then a few seconds before 2:30 Andrée swings himself up into the gondola and calls:

“Strindberg—Fraenkel.”

At once the lithe young men bound into the basket and take their places beside him. Over their heads waves the blue and gold Swedish flag and below it another of white silk with a blue anchor—the banner of the expedition.

The three men take out their knives to cut the ropes of some of the sand bags that weigh the balloon down and the same number of sailors from “Svenskund” stand ready below to cut the three final cables that hold the balloon to the beams in the hangar floor. First the sand bags are cut loose. Then awaiting a relatively calm moment, Andrée gives orders to cut the final three cables as he counts “Three.”

It is a tense scene. Everybody stands silent, as

the wind whistles through the planking of the hangar. The balloon jerks and bumps. The sail cloth stretched across the south side of the shed flaps hard.

Then sounds Andrée's voice "One—two—*three!*"

The heavy lines snap under the sailors' knives and like an eager bird the balloon rises in the air. A new blast knocks it to one side, but the posts have been lined with heavy woollen blankets and there is no rip.

As the ship of the air swings clear of the remnants of the shed its great size is better realized. The height of the bag itself is one hundred feet, and its width sixty-seven feet. But huge as it seems, close at hand, as it emerges into that desolate world of rock and snow and sea and sky, it shrinks into a littleness somehow pitiful.

At once the "Eagle" rises to perhaps three hundred feet, at the same time moving in a northeasterly direction across the water of Danesgate. But suddenly, swooping from the adjacent mountain tops, a current of air forces the big bag down to the sea. The car actually touches the waves. The observers ashore can still see clearly

all that happens. Disaster threatens at the very threshold of the voyage. The men in the basket work feverishly to meet the emergency. Fraenkel climbs aloft in the rigging to adjust the sails. Nine sandbags, each weighing forty-two pounds, are slashed loose and overboard.

Four men on the shore have jumped into a boat, pulling away desperately towards the basket as it hovers on the surface of the sea and the verge of destruction. Then as the ballast is released and the "Eagle" rises, those ashore see Andrée, with a speaking trumpet at his mouth roar something to those in the boat. Just what he said no one ever knew. Perhaps it had to do with his treasured guide ropes, which at the very outset parted one third way of their length, leaving two thirds on the shore. They had been laid out wrong and twisted enough to unscrew their joints.

The sudden crisis is over. Like a giant ball the balloon rebounds from the sea, skyward.

Then, flying free, with an altitude of perhaps fifteen hundred to two thousand feet, it moves on toward the southern cape of Amsterdam Island, soon to swerve again more directly north, over the sound between the island and Fogelsang.

Next a cloud shuts in and for many minutes the balloon is lost from sight, finally reappearing, a distant dot hanging precariously over the grey horizon. They thought it moved more towards the west during those last minutes—those who were straining their eyes from the starting point on the rocky shore there below the shell that was left of the dismantled hangar.

And then, perhaps an hour after the take-off, the balloon disappears entirely, swallowed in the mist of the far distance. Three brave men are embarked upon their quixotic quest, with nothing but the vagrant winds to move them on their way, and Providence to aid them.

2

Andrée in America

“**L**AWS of the Winds,” by C. F. E. Björling. Not the sort of light literature for shipboard reading to attract the casual traveller. But that was the book which Salomon August Andrée read on his way to America in 1876. And in the course of reading it came the inspiration for his historic Polar attempt twenty-one years later.

To Andrée, at twenty-two, just graduated from the Royal Institute of Technology in Stockholm, this book of lectures by a Swedish meteorologist proved thoroughly absorbing. From his own rather copious notes we have this account of the voyage and his reaction to the book.

“In February 1876 I was on board a German steamer en route from Bremerhaven to New York. With the exception of my cabin mate, a young German who was ducking military duty, and a Swede who claimed to be a pork importer bound for Chicago, but who later proved to be

a fugitive from justice, I had no acquaintances on board.

"We tried to pass the time together as best we could. But the pseudo pork dealer, who was a good mixer, soon made other friends who were richer than we and with whom he became engaged in gambling. My German cabin mate and I preferred remaining quietly in our berths.

"Time passed very slowly and we talked endlessly. The deserter took out his love letters to re-read. I had left all my own letters at home, and had nothing to read but a book of lectures on wind currents, which I had brought along in my trunk."

And then, Andrée relates, he was recalled from a sudden reverie into which he had plunged, by the laughter of his German friend. Glancing up from his engrossing love letters his companion discovered the young Swede lying immovable with closed eyes, and the book flat upon his face. But it was neither boredom with the volume nor mental ennui which had checked Andrée's reading. Suddenly an inspiration had come to him, and as his mental faculties focused full upon it,



Testing the balloon for leaks.



In the hangar as the balloon rises.

Smithsonian Report, 1897

all else was forgotten—book, ship and companion.

“In those minutes as I lay there with the book down over my nose,” he says, “an idea had ripened in my mind which decisively influenced my whole life.

“I had been reading about the trade winds and had been impressed by their remarkable regularity. And as I read, the idea struck me for the first time that balloons, even though not dirigible, could be used for long journeys. And not only from the Old to the New World, but also in the opposite direction and between the other continents. Björling’s book described not only the trade winds, but also told about the ‘strong west winds,’ the monsoons; in brief, all about the magnificent system of regular winds that was just waiting to carry aerial carriers—giant balloons transporting baggage and passengers.

“Anyway, the laughter of my companion brought me back to reality, and I did not ‘fall asleep’ again until the book was finished.

“Without saying a word to my comrade I kept mulling over the idea of world transportation by

means of balloons, and was firmly resolved, when I landed in America, to get in touch with an aeronaut and find out what I could about such balloons as were then manufactured."

Andrée was bound for the Centennial of American Independence. Soon after his arrival in Philadelphia he went to the Consul General of his country, C. M. Juhlin-Dahnfelt, to request some sort of a permanent pass which would admit him to all the exhibits. Like a small boy with his first watch, he wanted to take the exposition apart and see what made it run, but he realized that this would mean visiting it again and again, and, innately thrifty young man that he was, he did not care to squander needless admission fees.

The Consul General assured Andrée that he would like to get him a permanent pass but that it was not within his power to do so.

"However," he added, "I can get you some sort of a position in the Swedish exhibit which will entitle you to admission to all exhibits as well as to the exposition grounds."

"That would be splendid," said Andrée. "What sort of a position would it be?"

"How about janitor?" suggested Juhlin-Dahnfelt.

"Fine," said Andrée, and went away elated at having struck an excellent bargain. He had secured not only a blanket admission to the exposition, but a job which would pay his living expenses as well. He was very grateful to the Consul General for his kindness.

He dusted all the exhibits, swept the floor, and acted as general factotum for the charming little Swedish Schoolhouse which housed his country's contribution to the exposition—and which, by the way, is today in use as an obscure tool house in Central Park, New York. An old German, Otto Fliederich, still remembers distinctly the night when he stayed too long in the little building, and was stopped, at the point of a revolver, on trying to grope his way out after closing time, by Andrée, acting as night watchman. Having explained his presence to Andrée the two young men struck up a lasting friendship.

Evidently the fact that he was a graduate engineer from Sweden's leading technological school did not prevent Andrée from fulfilling his janitorial duties in a conscientious manner.

Later on he was wont to harken back to his job at the Centennial with a little more of melodrama than the experience actually warranted, as he was to other phases of his American experiences. In a speech later recorded on a gramophone for use at a fair in Brooklyn, while he was preparing for the voyage to the Pole, Andrée recounted some of those earlier recollections. That particular phonograph record has itself apparently disappeared.

"It is a great pleasure for me to be able to contribute to the Swedish Aid Society's fair," said the explorer. "I have been in America myself and have experienced how hard it is to be without work. I was glad many times that I could make my living by wielding a broom. In spite of that I have many pleasant recollections from that time because I learned a great deal while staying there. It is there I met the old aeronaut John Wise of Philadelphia, and it is there I got the first lesson in the manufacturing of balloons. America, therefore, is indeed a memorable place to me, and the American people can rest assured that I should like it very much if I could visit them with my balloon via the North Pole."

Andrée did not, however, permit either his janitoring or his interest in the many elaborate exhibits to divert his resolution to learn more about ballooning and its possibilities as a means of travelling long distances. Soon after he arrived in Philadelphia he got in touch with a veteran aeronaut in that city. We have his own intimate account of their acquaintanceship from Andrée's notes.

"I looked up the balloonist John Wise, an elderly man who had begun his career as a piano polisher, but who had tired of his trade and had instead taken up aeronautics, in which he gradually had attained an important position.

"Most aeronauts are warmly devoted to their profession, but, with the possible exception of my friend, Wilfred de Fonvielle, I have never met one who was as enthusiastic as Mr. Wise. He had at that time, if I remember rightly, made about four hundred flights; had used all possible kinds of balloons and had had all manner of thrilling adventures. He had flown with them in sunshine, rain, snow, thunder showers and hurricanes. He had been stuck on chimneys, smoke stacks, lightning rods and church spires, and he

had been dragged through rivers, lakes, and over garden plots and forests *privaeval*. His balloons had whirled like tops, caught fire, exploded and fallen to the ground like stones. The old man, himself, however, had always escaped unhurt, and counted his experiences as proof of how safe the art of flying really was.

“In order to convince a few fellow citizens who had been inconsiderate enough to doubt his thesis, Mr. Wise once made an ascent in Philadelphia, and while in mid-air he deliberately exploded his balloon. Then using the remains of the bag as a parachute he landed right in the midst of the doubters. What effect this had on them I do not know, but the old man himself felt better.”

John Wise was sixty-eight years old in 1876 and had been flying for forty years. He had written three books, “A System of Aeronautics,” “Through the Air,” and “Lightning and the Lightning Rod.”

It is interesting that Andrée should have got his first contact with ballooning through a man who was such a complete enthusiast on the subject as Wise. Curious, too, that the old man also cherished the same ambition as that which had

come to Andrée after reading the book on wind currents and which grew to be the dearest of his life, that of crossing the Atlantic by balloon.

As early as 1843, eleven years before young Andrée was born, John Wise had petitioned the Congress of the United States to appropriate money for a trans-Atlantic flight. In 1872 the idea was revived and first the city of Boston, in connection with some celebration, and then the old New York "Graphic," planned to back such a flight. But nothing ever came of it. Undoubtedly the gray-headed aeronaut of sixty-eight with his often-frustrated ambition, and the young Swede who had never been up, but who had in him a brand-new dream to cross the ocean by air, talked a language very much in common. And one can easily picture the two of them chatting endlessly together in Philadelphia, comparing ideas, the young and eager Andrée drinking in the words of experienced wisdom from the lips of his friend.

"To further impress his neighbors," Andrée wrote, "and perhaps to discover if it was just his individual good luck always to escape unhurt, he began to send aloft the other members of his

family, generation after generation. I made the acquaintance of his grandson, a lad of thirteen, who had made several aerial trips, sometimes solo as pilot. When I left the United States in the fall of 1876 none of them had perished in the air. But a few years later I read in the papers that my old friend had gone off on a balloon trip, had been caught in a storm and had never since been heard of. For his sake I like to believe that he landed unhurt and that he thereafter encountered obstacles which prevented him from coming home."

Andrée hardly guessed as he wrote that last sentence how poignantly its words would some day fit his own crowning experience. Unfortunately it was true that John Wise and a party of others were carried in a balloon over Lake Michigan and evidently were drowned during that four hundred and fifty-third ascension undertaken by the gallant old pioneer, at the age of seventy-two.

During the Centennial Andrée was to have made an ascension with Wise; who, as he wrote, "taught me the A B C of his art."

"He took me to his shop and showed me how

balloons were cut out, sewed together and varnished. Without reserve he answered all my questions and also introduced me to his family as if I had been a relative.

“When I asked him if I could share an air trip, he acquiesced immediately, and a short time afterwards informed me that I might accompany his niece, who was to make an ascension a few days later. It was to take place at the city of Huntingdon, Pennsylvania, where the authorities had decided to celebrate the Day of Independence with a balloon ascension.

“The evening before the Fourth, Mr. Wise, his niece and I left Philadelphia on a westbound train, bringing along a balloon and equipment. When we arrived the next morning Mr. Wise told me he was so tired he wanted to rest, and gave me the job of having the balloon filled, which I naturally accepted with alacrity. The details of the forenoon’s events have left my memory, but I recall that the balloon was filled in the main city square where a connection had been made with the gas main, and that about five in the afternoon the balloon was ready for passengers. . . . Everything had gone well; the public

was full of excitement and interest, and the little girl and I rejoiced at the prospect of our trip into the air.

“But fate had other plans. Just as my ‘niece’ was about to get into the gondola and I was eagerly ready to follow, there came a strong puff of wind which pressed the balloon down to one side on top of the spectators who rushed out of the way shrieking with laughter, just as the bag collapsed like a rag. It had cracked and fell to the ground as the gas went up into the air alone.

“There we were. To mend the balloon was out of the question. It had been badly damaged, and, even if it had been possible to repair it on the spot, there would have been no time to fill it a second time. We therefore had to return with nothing accomplished. Thus ended my first attempt to get up in the air.”

But Andrée’s determination to make an ascension was undampened. A few weeks later he tried again. A large balloon was scheduled to leave Philadelphia with five passengers, and Andrée asked to be included. His application was accepted at once and a place reserved for him. But

then came financial complications. The cost of the ticket which he must purchase was \$75.00.

"That," Andrée wrote later, "was a large sum for a person who earned his living by means of a broom, but if I had had the amount I would have paid it gladly. However, my entire funds amounted just then to fifty dollars. To be sure, I had more money, but at the moment it had been lent to a fellow student, who just then was out in the country, painting picket fences at fifty cents a day and board, and thus was in no position to pay me back.

"So I tried bargaining with the balloonist, finally offering him fifty dollars—every cent I had in the world. His answer to all my arguments was 'No,' and there was nothing left for me to do but shrug my shoulders proudly at his stubbornness and go my way."

In his records Andrée adds that that evening the stubborn balloonist sailed off with one woman and four reporters as passengers, making a fine trip of about three hundred miles. While he admits his poignant regret that he was not allowed to go, he cannily added that perhaps it was for the best because had his \$50 offer been accepted

he would not have had a cent left in the world. "And," said he, "I have no idea how I could have returned to Philadelphia from the landing place, unless by chance we had come down near my friend, the fence painter, who might have recommended me for a job."

Andrée fell ill shortly thereafter with a severe intestinal disorder, caused, he believed, by the consumption of ice water in America, although his experiments with a limited diet probably were largely responsible. He gradually became so weak that he could no longer work and finally had to content himself with returning home in order, he was convinced, to escape a miserable death.

As a matter of fact, Andrée probably was not justified in charging his disability to the American vice of consuming ice water. It was his custom always to keep a minute written account of his expenditures—as, indeed, of all his actions. During his months in America that expense account shows him a model of parsimony. In his note-book we find numerous entries showing expenditures of five cents, eight cents, and ten cents, mostly representing purchases of ice cream, candy, cake and the like. Not a single entry for a

full meal, or a regular dinner, is recorded. In England, on his way back, he suddenly went spend-thrift and threw to the winds as much as one shilling for a meal. It seems more than likely that improper diet and cheap food contributed much towards the temporary breakdown of his health.

All of which stands in violent contrast to a motto that he set down shortly after leaving college: "Take care of your health but not your life."

He never saw John Wise again or had any communication with him. Had Andrée remained longer in America it seems likely that these two kindred spirits might have worked together on some ambitious project. Balked in his trans-Atlantic plans, Wise, only four months before he died, was trying to promote a balloon flight to the North Pole. In a letter to the New York "Times" for May 6, 1879, he pointed out that in the polar summer there is an inflowing current of air that will carry a balloon into the polar basin, and asked that if anyone deemed his suggestions of any value they should "give the scheme a push."

Andrée, at home again, gradually recovered his health and began to meditate on aerial plans. Investigation soon convinced him, however, that Sweden at that time was coolly disinterested in aeronautics. Concluding that it would be useless to seek financial backing for his schemes, he decided to set about earning a living in his own profession, which was that of mechanical engineer, with the intention to put by enough funds to enable him to practise ballooning as an avocation later on.

As Andrée was a genius at making his money go miraculously far, it is probable that his savings accumulated at a most satisfactory pace. Certain it is that he spent next to nothing on himself in proportion to his position and his means. Always in Stockholm he lived in a single room, even when he had emerged as chief engineer of the Patent Bureau with a really comfortable income.

Later on this very exactitude in financial matters stood him in good stead. Always his expedition accounts were a model of preciseness and his estimates fulfilled. Indeed, so businesslike was his fiscal administration that in August of 1897 with

all expenses paid and the "Eagle" and its crew lost in the North, there actually remained a surplus of 10,000 crowns in the expedition's treasury. This amount was used to pay for a search party.

A unique record, that, for modern explorers to emulate!

The Man and His Background

“**T**HE thing is so difficult I cannot refrain from trying to do it.”

Andrée’s reply to a friend who once accused him of butting his head against a stone wall and trying to accomplish the seemingly impossible is as characteristic of the man, as it is of the stock from which he came.

Grenna, the little village in which he was born, lies in the province of Småland in the south-central part of Sweden. All of Andrée’s forebears came from this region, whose inhabitants are noted for their do-or-die character—a quality sometimes called stubbornness. There is an old Swedish proverb to the effect that if a Smålander were placed on a rock in the sea and given a goat to tend, he would get along somehow. A fine stock, certainly, from which to derive Arctic explorers, and Andrée had his full measure of the tenacity, ingenuity and obstinacy which charac-



General view of Grenna, Andrée's birthplace.

Photograph Swedish State Railways

terizes it. His mother too was a typical Smålander.

Andrée went straight back to Grenna after his American visit. The tall, blonde, blue-eyed, hale and hearty young fellow returned, broken in health, and scarcely able to walk. His digestion was shattered, but months of rest and recuperation under his mother's care put him back on his feet. From the deeper change which had taken place in him during his American trip he failed to recover. Once exposed to the contagion of aeronautical adventure, the lure of the air never left him.

He had gone away with a book on wind currents and a casual interest in the problem of aerodynamics. He came back at heart a dyed-in-the-wool aeronaut. He had acquired a cause to fight for; had defined a reason for living. And everything he did thenceforward was undertaken because directly or indirectly it seemed to further the consummation of his plan to get up into the air and educate himself in the problems of man flight. The physical ingredients of the air also intrigued him greatly.

Being a mechanical engineer by profession, Andrée determined to open a machine shop together with a partner in a town near Jönköping, the center of the Swedish match industry, and put by enough money to buy a balloon later on. It happened that times were unusually bad just then and after a few years of hard work he found himself financially ruined and up to his ears in debt. And in addition he had acquired a distaste for business partly, he said, "because it seemed repulsive to me constantly to say derogatory things about competitors when it came time to sell, and about goods when it came time to buy. Constant striving for money killed interests which I valued very highly and which I wanted to keep alive."

He felt balked in his own country and was half determined to go abroad and investigate possibilities of making some aerial trips there. All his spare time he had devoted to studies and speculations on the subject of ballooning, and he covered piles of paper with data and drawings of every possible kind relative to his hobby. His brother Ernst, who was captain of a sailing vessel and traveled around the world, he constantly be-

devilled for information about the directions and velocity of the winds over the open seas.

His chief ally in his ambition to fly was his mother. As Andrée was the sort of person who managed to get something on paper about all the details of his life and opinions, we glean from his records a rather vivid impression of her as well as of his father and his general background.

One of the maxims of his life was: "If you want to remember a thing write it down."

Claes Georg Andrée was an industrious, upright, kind and simple-hearted man, who owned a druggist shop in Grenna. He believed in strict discipline for his children. At the age of ten or thereabouts Salomon August Andrée conducted his first experiment in aerodynamics and sent a paper airship flying by means of a percussion cap from a hill behind the town. It soared beautifully over the housetops but came to grief against a neighbor's barn and narrowly missed setting fire to it. Andrée's playmate, now an old man of eighty-six, who assisted in launching the balloon, reports that when they saw it come down and land on the barn they got down off the hill faster than they ever had in all their lives before. Wait-

ing for them at the bottom was Andrée's father, cane in hand.

All seven of the Andrée children received excellent educations. Their early schooling was obtained in Grenna, and later they were sent for further instruction to the neighbouring city of Jönköping, where Andrée himself attended school for three years. The traditional program there was chiefly along the so-called humanistic and classical lines, while August was disposed from the first toward the sciences and engineering. And yet he had a good record and won so many prizes that at one commencement his father overheard a clergyman whom he did not know declare, "That boy will wear out his shoes going up for prizes," whereat the proud druggist burst forth with, "That he may, for it is my boy."

At the Christmas vacation in 1867 young August informed his father flat-footedly that he would study no more dead languages, since he had made up his mind to be an engineer. His father asked him to explain himself, which he did so well that he won a promise to be transferred to the technical schools at Stockholm if he would but finish out that year in Jönköping. This agree-

ment was carried out on both sides, and his father, who died when August was only seventeen, had provided sufficient funds to put him through the Royal Institute of Technology. His summer vacations Andrée spent in practical work, one as a tinsmith, another in a foundry, and a third summer in a machine shop. The trip to the United States and the Centennial was intended to top off his education. He was an exemplary student, but neither particularly tractable nor popular among his fellow students, being too obstinate.

His mother once wrote that, as a boy, he was stubborn with a touch of defiance, though far from mischievous. She recalled that at the age of fourteen he gave up hunting, of which he was particularly fond, because he feared to wound an animal without killing it, thus causing needless pain.

His mother also was of the intellectual type, and it is from her the boy evidently inherited his scientific bent, as well as from her father who was a mathematics professor, who in turn had three generations of clergymen behind him—all of whom much preferred keeping records of temperatures and changes in the weather, to pre-

paring sermons. One of her ancestors was a Bishop who served in the Swedish Parliament and in the Cabinet, and was credited as the ablest political debater of his day.

In one of Andrée's many notebooks he thus alludes to his mother: "Her rich natural endowments, in which good judgment and sharp intellect dominate such characteristics as are commonly called feminine in this day and time, her remarkable will power and capacity for work, as well as her ability to endure and suffer, remind us of the old Norse women. Despite her seventy-five years she does not seem old. Her face has few wrinkles. It seems to belong rather to a woman of sixty. This impression of power still unshaken is heightened by her voice which lacks the sentimental, pleading tone one so often finds in older women. Her voice harmonizes with her exterior: firm, strong, almost gruff, but with an undertone of kindness."

Andrée was intensely devoted to his mother. She seemed to absorb all his human affections, and as he was her favourite child, she followed all his adventures and plans with deepest interest.

“With August there has always been something special,” she once wrote.

Aside from his mother, Andrée had few if any illusions about women. He once wrote, “I am not supposed to ‘understand love,’ but I have never yet seen a man love in the way I intend it, and I have the impression that women are quite easily satisfied in that respect.”

He was a handsome, masculine individual, with a fine military bearing, combined with a simple, unassuming manner, and consequently had many women admirers, but always managed to keep them at a distance. When he felt a twinge of affection, he resolutely stifled it. “As soon as I feel a few ‘heart leaves’ sprouting,” he explained, “I resolutely pull them up by the roots. That is the way I happen to be regarded as a man without romantic feelings. But I know that if I once let such a feeling live, it would become so strong that I dare not give in to it.” He was resolved to devote his life to scientific progress, especially in the air, and he seemed to have concluded that a wife would be a detriment to his chosen career. Once he replied to a question as

to why he did not marry, "No, for I would risk having her ask me with tears in her eyes to abstain from my flights, and at that instant, my affection for her, no matter how strong, would be so dead that nothing could ever bring it back to life."

There spoke the Scientist Andrée. At another time he dissected one of the platitudes applied to women:

"People speak of 'respect for women.' Why should they be respected? What does the phrase mean? Should we respect women just because they are women? That would not be sensible. If they are to be respected, it must be because they have certain qualities that deserve respect. But why then say 'respect for women' instead of respect for these qualities?"

"Or perhaps it means that 'respect for women' is the same thing as respect for the weak. That is to say that 'respect' is only a politer term for what we usually call 'lenience' or 'pity.' "

This is so logically and pertinently put that one could hardly accuse him of misanthropic tendencies, until one reads this further note written when he was quite young: "Women are at first interesting, then they become tiresome, next disagreeable,

and finally so insufferable that one gets a fever of distaste at the sight of them."

The theory has been advanced that he may have been disappointed in an early love affair and so conceived a prejudice which endured throughout his life, and applied to all women except his mother. Or, since this was written shortly after his return from America, the Philadelphia ice-water and his general disability may account for his bitterness.

Undoubtedly he preferred forceful people, like himself, who had the courage of their convictions. Probably he had a touch of a superiority complex. He used to say, "Of course I can feel sympathy with a weak person, but I can never give my respect to anyone who, no matter for what reason, surrenders his own personality. Never, for instance, like the majority of men, can I see anything admirable in the fact that a woman finds her chief satisfaction in being submissive to her husband."

Andrée had the pamphleteering type of mind, and he not only had decided opinions on any and all subjects, but he was always ready to do battle in their name. And many of his points were not

only very well taken, but also admirably expressed. He liked nothing better than a good lusty argument.

Count Hugo Hamilton, chief of the Royal Patent Office, where he was employed for years as chief engineer, said of him, "When I had to convince Andrée that he was wrong about something, I usually had to begin with the story of creation." Andrée also found it difficult to abide by what seemed to him antiquated and impractical provisions of the law as to the granting of patents. "When I told him," Count Hamilton reported, "that the law did not read that way, he used to reply, 'But that is the way it ought to read.' "

He was full of ideas on social reform as well as for the advance of scientific research. Once he predicted that some day stereoptican slides would be used to illustrate lectures; and for the relief of unemployment in Stockholm, he proposed the digging of subways. In magazine and newspaper articles he wrote on such varied topics as "Industry and Feminism," "The Effect of the New Inventions," on "Social Equality," "Popular Education," "Sports" and even "Matrimony."

At the age of twenty-six he won a prize for an essay entitled "Education and Women." He stated very definite opinions and did not hesitate to recommend certain changes, leading "to the goal: Physical strength and beauty." For their early years he proposed omission of all religious instruction, urging instead more gymnastics, more baths, and the study of such subjects as geometry, physics, chemistry, physiology, psychology and dietetics.

As a matter of fact Andrée was everlastingly trying to "bring up" some woman, even his sisters. His mother was the only one whose mind, in his opinion, did not need considerable renovating.

An instance of his pedagogic attitude toward the opposite sex is told by one of his women acquaintances. Reproached for her taste in literature, she had replied: "Well why not submit to me something worth while reading." He promptly sent her *On Liberty* by John Stuart Mill; *The Soul Life of the Lower Animals* by O. M. Reuter; and a geological treatise by Professor Gerhard de Geer.

Regarding the importance of giving working-men instruction in such subjects as astronomy,

mechanics and meteorology, he wrote that they thereby would be "initiated into seeing the application of law everywhere."

Politically he was a liberal. He had no patience with the conservative outlook or contentment with things as they are. On the contrary he often felt, like Hamlet, that the times were out of joint and that he was born to set them right. He once served as a member of the Board of Aldermen in Stockholm, but made no success of politics, partly because he never was willing to compromise and partly because he hated the obsequiousness required of a politician. His proposal for a reduction of the working hours of city employees from twelve to ten hours was declared at a public meeting "to have been sufficient warrant for omitting his name from all further consideration." But only three years after that the reform was adopted and now the eight-hour day is general in Sweden. Later Andrée refused a nomination for the national parliament.

"The conservatives are always more active in their own behalf than the liberals," he wrote in his notes. "The reason is that the liberals or progressives feel sure of the ultimate triumph of their

cause because they know they are supported by the law of evolution, while the conservatives feel themselves constantly threatened and are therefore busy protecting themselves." He also wrote, "Honesty must be a dangerous force, since the leaders of the present system fear it so much. And how much honest people have to suffer for the sake of scoundrels, is best shown by the fact that all laws which deprive the honest of their personal liberty are derived from the acts of the dishonest."

Strongly anti-militaristic, Andrée once wondered in his notes whether it would be feasible to select some neutral place, preferably an island, for the segregation of war-making peoples. There the belligerents could conveniently exterminate each other, without disturbing innocent bystanders.

In his attitude toward life Andrée was not a religious believer in the conventional sense. "A great deal of our notions about what is useful, beautiful and right," he wrote, "depends on reminiscences. Children are now taught to believe in an arbitrary power, and later it is almost impossible to get them to clear up their conceptions so

that they can grasp the immutability of natural laws. Everything that happens is a natural phenomenon. Nothing is therefore either unnatural or supernatural. Actually the first of these terms means that which we do not like or approve of; the second, that which we cannot understand."

Andrée was a very thorough individualist, and he went so far as to speak of egoism as a principle of life. Even the greatest martyrs, he maintained, may be the most thorough individualists when they follow their own impulses to do what they most want to do.

"When one of my actions," he went on to say, "seems to benefit another person while I, myself, do not appear to gain thereby, you call it altruistic. But how do you know that it did not suit my individual impulse, or that it was not done purely because in my judgment it seemed the wisest thing to do *to do it that way?*"

"According to your interpretation a woman who devotes herself to her husband, children and home, deserves praise and is said in many instances to be leading a life of sacrifice; while in my opinion she acts in a purely egoistic manner, and just the opposite would involve a real sacri-

fice. Egoism, therefore, deserves recognition as a life principle, and what is more, society as a whole would best be benefited by each and everyone's wholesome and genuine acceptance of the fact. I do not believe there is any blessing in so-called sacrifice."

Not only was Andrée an individualist himself, but he was ready and willing to demonstrate to any and all comers his right to be one, and to prove to them that unless they were highly inconsistent and unintelligent, they too would go forth and become as he.

"By thyself," was perhaps Andrée's most fundamental axiom. Only two months before he flew north to his death he wrote his last statement for publication, while he was on board the "Svensksund," at Danes Island, Spitzbergen.

"To be one self, is, according to my experience, one of the chief conditions for a relatively happy life," he wrote.

"The flight of the swallow is swifter and prettier than that of the pigeon, but the latter must be allowed to fly in its own way.

"It is the same with human beings. One who is by nature a sister of mercy is most happy if

she devotes herself to charity, even though it be rewarded with ingratitude. And one who is by nature a highwayman, even if he ends on the gallows, has lived as happily as possible, if he has spent his life as a highwayman."

In his notes he had previously written, "The saddest part in the drama that is constantly played about us is the reckless waste of spiritual power."

Of his philosophy of life, Andrée was an accomplished salesman. He believed nothing which he had not through long years of mental training learned to express so convincingly that others too would come to admit its merit. This gift for effective proselytizing stood him in good stead later on when he broached his North Pole project.

It is not surprising that his friends felt that a man with such richness of mind, aside from his scientific knowledge, was too valuable for sacrifice to that grand passion of his—ballooning. Sweden, they said, must keep him. They convinced him that if he had patience he could build himself up to a position in his country, which would enable him to finance aeronautical experiments. An as-

sistant instructorship at the Royal Institute of Technology was secured for him, and later on an assignment to go with the scientific expedition headed by Dr. Nils Ekholm to Spitzbergen. There his work consisted chiefly in making observations, meteorological and magnetic, a work dovetailing perfectly with his major interest in life. Altogether he made about 15,000 magnetic observations. Through this experience he became friendly with Dr. Ekholm, who in 1896 decided to join the polar balloon expedition.

One of the studies Andrée was working on at Spitzbergen was the effect of darkness on eyesight and the color of the skin. He remained in the dark room two weeks longer than the other members of the party to get comparative data on the subject. His companions were nearly always willing to humour him in coöperating on his experiments because he was himself so impressed with their importance that his enthusiasm became irresistible.

Andrée was ever an inveterate experimenter. "That sounds interesting, I'll have to find out all about it," was almost a rule of life with him.

Some of his experiments had to do with important subjects, others with problems of no particular moment to anyone but himself.

For example, he once decided to see how many eggs he could eat at a sitting. He walked into a restaurant and ordered two score boiled eggs, besides bread and butter and milk.

"And now," inquired the waitress, as she served the Gargantuan repast, "would you like something else to eat?"

No matter how seriously Andrée took himself, he could usually see the humorous side of a situation, even if the joke was at his expense. His sense of humour was inherited from his father.

Incidentally, his favourite dissipation in the food line was ginger bread cookies and cream. He often gorged himself on them. He also liked deserts and candy as well as fruit.

Of all his experimentation that in which he took most joy had to do with aeronautics. After he returned from the Spitzbergen expedition when he proposed to emigrate to Australia, his friends secured for him a position in the patent office which he held until his death. In this he had both leisure and a good salary. He continued his studies

in aerodynamics both in Sweden and abroad, notably in France, where ballooning had made the greatest progress. While there he took a three months' course with Georges Besançon.

His first chance to go up in a balloon came in 1892, when Captain Francesco Cetti, a Norwegian aviator, who had been flying since 1890, came to Stockholm. Andrée was the passenger during the fifth ascension. Nine days later he made another trip into the air.

Cetti complained because Andrée showed no signs of excitement on that first trip—told him, in fact, that he was “disagreeably calm.” As for Andrée’s sensations during the ascent, his own searching analytical account says:

“I observed myself as closely as possible in order to learn whether I was afraid or not. I discovered that I was not conscious of any feeling of fear, but that I probably was influenced by it unconsciously. However I could not note any other signs of it than that I surprised myself holding fast to the stay ropes, although these were the part of the entire outfit in which from the beginning I had felt the least confidence. Later I remembered that I had thought them

weak and then caught hold of something else. It took a few seconds before this reasoning seeped through. As I let go of the ropes I thought: 'I must have been afraid.'

"But I felt no sense of dizziness, not even when I leaned over the railing at the highest point of our flight and looked right down into the deep."

For the first time he had realized the opportunity of looking at the world from the air. Never did he fail to derive deep pleasure from the scenic panorama, the "bird's eye" view so rare in his day.

Andrée never cared for music or the theatre, for reading, except scientific treatises, for art exhibits, or any of the "cultural" amenities of life. He much preferred walking through a factory or sooty machine shop to attending an opera. Indeed, his mechanical-minded disinterest in the arts probably was irksome at times, escaping downright rudeness by the narrowest margin, if at all. His friends report that at the opera he would interrupt the most soul-stirring aria to criticize the lighting effect or a mechanical device in the set.

After two flights Andrée was convinced that he

must have a balloon of his own for scientific research in the air. He appealed for money to the administrators of a fund created by the widow of the publisher of the "Aftonbladet" for the promotion of public welfare and the progress of science. So convincing was this appeal that very promptly the desired amount, 5000 crowns, was placed at his disposal.

At last he had a balloon to fly in. He called it "Svea," a poetic name for Sweden. It had been constructed by the French balloonist L. Gabriel Yon, who had been in charge of the two balloon factories during the Franco-Prussian war.

In "Svea" he made altogether nine flights. He always went up alone, carrying many instruments, and took scores of aerial photographs. He made more than four hundred observations regarding variation of temperature and humidity, the formation of rain, snow and hail, the vertical movement of sound, the chemical composition of the air, and the possibility of photographic map-making for military purposes, anticipating by some thirty years the reconnaissance work of the air services in the Great War. His first trips were made from Stockholm; the later ones from Goth-

enburg on the west coast, which gave him more opportunity for navigation overland in the prevailing westerly winds.

On one of his flights in "Svea" he made an altitude record which stood for years. Then, as to-day, it was failure in aviation, and not success, which made news. One hundred normal flights may go unrecorded. But a crash wins the front page. And so it was with Andrée. Being lost, he suddenly became "news" to the people of Sweden. On the flight across the Baltic Sea to Finland he failed to turn up for more than a day.

"Where is Andrée?" Then, for the first time, that question—destined for so many repetitions in the thirty years following 1897—was asked.

Sixteen hours later he telegraphed he was safe and unhurt. But his claim to fame had been countersigned. Having been lost on an aerial adventure, and having returned, Andrée became a national hero, and was received as such.

It was his first taste of publicity. Perhaps it was that, in his curiously restricted and self-centred life, for which he unconsciously thirsted. It was public recognition, and the resulting national expectation and demand, which ultimately

influenced his career and perhaps sent him to his death, a victim of the Frankenstein which he and circumstances had set up.

All his life Andrée had unconsciously dramatized himself. Was that the natural reward of a vivid imagination, or the penalty?

At any rate, Andrée became famous publicly for the first time and doubtless found it a pleasant experience. He enjoyed telling the full story of his adventure, which was not a little exciting and might easily have ended in disaster.

He had gone up in the clouds above the Swedish coast at 8:43 in the morning to make observations. After three hours he was through with his work, but when he descended, he found that he had drifted out to sea. At first he tried to make contact with a steamer he saw to the south. After wasting an hour in this effort, he decided to cut his ballast lines and let the balloon set off for Finland. By three o'clock in the afternoon he was flying low over the Baltic, with neither boats nor islands visible. He cut loose his anchor as he was passing some outer rocks, fearing it might catch in them. By half-past five, as it was getting dark, his drag line struck the first Finnish skerries.

Suddenly he saw lights below. After a strenuous and rather painful time he brought his balloon down and managed to let go and jump in time to land on a small island. He swam across to a larger one, which turned out to be entirely uninhabited. There he spent the rest of the night, wet to the skin and without food. His provisions, consisting of three sandwiches, two bottles of beer and two of vichy water, as well as a little brandy, had all been consumed while he was in the air. There were no trees on the island, no shelter of any kind. Soon it began to rain. He had no overcoat; on his feet he wore a pair of felt slippers over his ordinary shoes. His legs were bruised from being dragged over the rocks by the balloon.

Sixteen hours later, at eleven o'clock the next day, a fisherman pulled up to the island in a row boat. Andrée felt sure that his balloon at least must have been seen from the shore the night before and asked the man why he had not come to the rescue sooner. The fisherman explained that his wife thought the Day of Judgment had come when she saw the great balloon, and would not let him investigate until the next morning, when

the light of day at least lessened supernatural risks.

From the next village Andrée sent a telegram to Stockholm assuring his friends of his safety. Through the negligence of a messenger it was not sent until late that evening, and did not reach its destination until the middle of the night. The delay only heightened the suspense as to his fate, and the news of his survival, announced by special editions of all the papers, caused great rejoicing.

After that everything he and his balloon did was copy for the newspapers. His longest flight in "Svea" was made on November 9, 1894, when he sailed from Gothenburg to Gotland, an island in the center of the Baltic Sea, covering over two hundred and fifty miles in five hours. On March 17, 1895, he made his last flight in the balloon, and after that it was sold to the outdoor museum at Skansen, near Stockholm. The instruments used by Andrée are still preserved in Stockholm, but the bag itself came to an inglorious end being consigned to duty as a water-proof cover for merchandise.

It was two years before Andrée was again in the air. The next take-off was from Danes Island on July 11, 1897—the North Pole flight from which he never returned.

4

Andree's Companions

IN 1896 Dr. Nils Gustaf Ekholm was ready to go with Andrée.

It was appropriate as the two men had first come to know each other there at Spitzbergen, whence the Polar flight was to start. In 1882-83 Ekholm commanded a meteorological expedition to Spitzbergen. It gave Andrée his first taste of Arctic experience. Ekholm, six years older than Andrée, and later Director of the Meteorological Institute of Stockholm, was the younger man's superior in learning as well as academic rank. All through his mature years he was a prolific writer on scientific topics and his works were published in English, German and French, as well as in Swedish.

The preparation of scientific instruments was entrusted to him and to Strindberg, who was also a theoretical scientist with university training.

Ekholm, though a distinguished meteorologist, apparently knew nothing of ballooning. Nor had

he any practical knowledge of living on the Polar ice and none of that essential experience in "living off" as well as traveling over the country, which distinguished the equipment of such men as Nansen, Sverdrup, and Nordenskjöld. Indeed, by no stretch of generous imagination can any member of the balloon party be characterized as a seasoned Polar explorer.

Ekholm, then forty-eight years old, accompanied Andrée to Spitzbergen in 1896.

It was not until some time after the final abandonment of that year's effort that he announced he would not accompany Andrée the next year. His reasons he set forth in an article in "L'Aérophile." Primarily he based his retirement on the condition of the balloon and secondly he felt that there simply was not sufficient data available concerning actual wind directions in the polar regions. With Ekholm it was no question of lack of courage. Of courage he had plenty. With him it was a matter of cool judgment—a decision reached after careful study and observation. And at the end of it he tried to persuade Andrée to abandon the project.

During the delay of that summer of 1896

Ekholm found that the balloon leaked more gas than had been anticipated, and concluded that the attempts of patching were fruitless. His formal reason for withdrawing, as announced after the party's return to Sweden, was that Andrée had promised five-fold security as regarded the ability of the balloon to stay aloft. And since that could not be obtained, he felt justified in backing out. While Andrée contended that the balloon would hold gas long enough to stay up for a month, Ekholm, after seeing its performance that first year, concluded that it could not keep going more than fifteen days, and he felt that under the most favourable circumstances they could not hope to reach land on the opposite side of the Pole in less than twelve days—a margin of safety that was too slender.

In an interview in Stockholm, Dr. Ekholm expressed himself as follows:

“It is not merely a question of getting into the Polar area, and out again. The capacity of the balloon ought to be sufficient to make possible the selection of a suitable place to descend.

“In addition to that, Andrée seems to me to

attach too great importance to the means of rescue and return. He has expressed his opinion publicly that a start by balloon and a return by means of sleighs and boats is likely to be the typical technique of future Polar exploration. This opinion I cannot share. The balloon is, and remains, the main vehicle. It should not merely carry the expedition into, but also out of, the Polar area. How should one act, for instance, in case the balloon should lose its carrying capacity and the expedition find itself in the center of the polar region? Nansen had remarkable luck when he reached Francis Joseph Land, because if a storm had broken up the ice his return trip would have been cut off, and in order to endure the rigors in these regions one ought to have been trained from childhood as Nansen was. One ought to have lived as he had, a whole year among the Eskimos. Yes, one ought, in fact, to be an Eskimo oneself!"

Visitors to Danes Island in 1896 reported that Andrée used to refer to Dr. Ekholm as the "old fellow," adding that it was he who had decision as to when the balloon should start. Perhaps because, after all, he was the most highly trained

meteorologist in the party. Ekholm at the time was 49 years old.

How Andrée felt about his retreat is not known. If he ever said anything on the subject, it has been kept private.

As shown by the final outcome even Ekholm's calculations turned out to be too optimistic, and doubtless Ekholm felt more and more justified in his decision as the years rolled on and no news was received from Andrée. In 1913 he was appointed professor and put in charge of the Central Swedish Meteorological Institute in Stockholm. In 1918 he retired and on April 5, 1923, he died, full of years and honours.

Younger and less cautious in temperament was Nils Strindberg, the second of many applicants to be chosen. He had been born in Stockholm, September 4, 1872, and thus spent his 25th birthday on the ice. His ancestry was that of an old merchant family of Stockholm with literary and musical interests on the side. His father was a first cousin of the dramatist, Johan August Strindberg. One of his brothers is an architect in Stockholm and another a noted sculptor. A third brother, Erik, lives in Portsmouth,

Ohio. His mother was also of an old Stockholm burgher family, named Lundgren.

Like Andrée himself, Nils Strindberg had been both a healthy and studious youngster. His schooling was begun when he was six and at the age of 18 he passed the maturity test or "student" examination which would have admitted him to various careers. He had good marks in all subjects, especially languages, but his real taste was inclined toward mathematics and science. As a student of these subjects he entered the Stockholm "High School," which corresponds to a university, except that it lacks the traditional Divinity School, and there specialized in physics. The year 1892-93 he spent at the older University of Upsala, where he passed the "Philosophic Candidate" test, one of the preliminaries to a doctor's degree. He also published studies in French, German and Swedish on the electrical conductivity of various chemical solutions and on the multiple resonance of electrical waves. His teachers expected him to make a brilliant career as a specialist in these subjects. Had he lived he probably would have ended as a professor of physics in some Swedish university.



Fraenkel, Andrée and Strindberg on the *Svenskund*.

Besides being a scientist, Strindberg played the violin and in his notes Andrée tells of his fiddling for the company while waiting for favourable winds. It is unknown, however, whether he took his instrument with him on the flight, though not impossible. The gondola held many things.

Furthermore Strindberg had made a certain mark as a photographer, winning first prize at the exposition of amateur pictures at the Winter Palace in Stockholm in 1895. For this reason the entire photographic equipment was entrusted to him and for the trip he designed a special camera. Some of the plates and film have been recovered but so far they have not been developed. The geographic records were to be made on the basis of photographs, and since this was the first Polar exploration trip by air, much was excepted from them. Together with Dr. Ekholm, Strindberg made several tests as to the steering efficiency of the drag lines and the carrying capacity of the balloon. To prepare himself as an aviator, he went to Paris in the spring of 1896 and from there made six flights of short duration. He had never been up with Andrée until they set off for the Pole.

On the return from the 1896 expedition the

friends of Strindberg, among them one as influential as Dr. Svante Arrhenius, tried to persuade him to follow the example of Dr. Ekholm and retire from any further attempt, but Strindberg replied that he had given Andrée his promise and intended to keep it, regardless of how much gas the balloon leaked. That he fully expected to get back is shown by the fact that on October 28, 1896, he became engaged to Miss Anna Charlier, of Stockholm. She waited for him six years before marrying.

The third man chosen by Andrée for the great Polar trip was Knut Hjalmar Ferdinand Fraenkel, who was to replace Dr. Ekholm on the second attempt. He was less of a scholar than any of the others, including Andrée himself, but on the other hand he was the hardiest of the group in a physical sense. He was the strong, hearty out-of-doors man, mountain climber, trained gymnast and railroad builder. He had never been in the Polar regions, either, but he had lived with the railroad construction gangs in the north of Sweden and had made a cross country expedition to the highest snow-capped mountain peaks. Like many other young Swedes, he had followed the

balloon flights of Andrée with intense interest and the trip to the North Pole appealed to him as a stunt worthy of his hero king, Charles XII. When the more cautious Dr. Ekholm retired there was a flood of applicants from abroad as well as from all parts of Sweden for the third place, but nothing daunted and hopeful, Fraenkel went direct to Andrée himself without introductions and without asking anybody's advice and asked for the place. He was then a recent graduate of the same Institute of Technology, from which Andrée had been graduated some twenty-two years before, and was preparing for admission to the engineering corps of the Department of Public Works, or "Road and Water Construction" as it is called in Sweden.

Quite probably Andrée had never seen nor heard of the young man before, but he must have been impressed by his athletic build, his straightforward manner and his genuine enthusiasm, for he accepted the applicant on the spot. After Dr. Ekholm's somewhat professorial restraint and careful calculations, Andrée surely felt refreshed by sight of this hale and hearty young man who knew little of physics and less of meteorology,

but who was willing to enter a great adventure on a chance. There was a dash of the old Viking spirit about Fraenkel which fascinated the by-then doubtless weary leader.

Fraenkel's father had been an army engineer and as he was employed on various state railway construction jobs, the family moved about considerably, often interrupting the boy's schooling. Knut was not a book worm, but he loved gymnastics and in that took several prizes which were the pride of his heart. His favourite subject was botany, probably not so much because he liked flowers, as because it gave him an excuse for excursions in the open air. Next to botany he made his best marks in literary composition and his patriotic poems impressed his examiners more than his calculus or his chemistry.

Fraenkel evidently was an extremely worthy and sober young man. He always kept in training and refrained from the use of tobacco or liquors, considering them harmful to his physique. "Excessive enjoyment is the death of pleasure" was a favourite aphorism. Despite—or perhaps because of—his probity, he was a good mixer and team-

mate and it is recorded that even the laborers on the railroad construction jobs regarded him as their comrade. A healthy, hearty man of fine physique and abundant good-nature, who knew how to draw maps, shoot game and live in the open, he seemed to Andrée an ideal associate on an adventure, such as lay before them.

In preparation for the trip Fraenkel went to Paris, as Strindberg had done the year before, and there made seven balloon trips together with Captain Svedenborg, who was to go as an alternate. On the second ascension they were dragged on their stomachs across a field for some hundreds of feet and on the third they fell over a thousand meters in what seemed to Fraenkel was but a moment. To save themselves they threw out sand ballast, but so fast were they falling that it hit the aviators in the face. In that spectacular descent all instruments were smashed, and numerous bruises received. But Fraenkel seemed to regard such mishaps as excellent sport to be described with enthusiastic detail in letters home. Before embarking from Spitzbergen, his farewell to his parents and relatives was of the most casual kind; he regarded

the Polar flight as but an incident of short duration—at worst an escapade alluring enough quite to justify the risk of his life.

The alternate, Gustaf Vilhelm Emmanuel Svedenborg, who was ready to jump into the gondola at the last moment, was then a lieutenant in the Swedish army and is still living as a Lieutenant-Colonel in the Reserve. Born in 1869, he was 28 years old in 1897. He has lived to see both aviation and radio develop, and when the *Andrée* relics were found he described his early associations with the lost explorers for the Swedish radio audience.

The Pole By Air! Great Plans

MORE interested in flight as a means of conquering the North Pole than in the conquest itself, Andrée was too much of a man of science and intellect to under-rate the scientific significance of polar exploration. Then, too, there was the old, old lure of solving the riddle of the unknown, of accomplishing what men had been trying to do since 1627, and probably earlier, of finding the middle of the top of the world. Andrée was enough of a Swede and enough of a simple-hearted dreamer to feel that urge in the fullest measure.

We do not know exactly when he first began to think of exploring the Arctic by air. Perhaps it was during that winter of 1882-83, when as a member of the Swedish scientific expedition at Spitzbergen, he worked day after day making astronomical and meteorological observations. Undoubtedly while he took measurements of the electricity in the air and studied the phenomena

of the earth's magnetism, he was too deeply interested in aeronautics not to wonder how these northern conditions would affect a balloon, and to note that during the summer the winds were chiefly from the south.

Other balloonists had played with the idea of aerial polar exploration. As early as 1845 Dupuis-Delcourt had presented to the French ministry of education a very fantastic plan for a balloon expedition. Maréchal, Lambert, Silbermann were other French aeronauts who had considered similar undertakings. In 1866, Dr. Meissel, a German, conceived a project of building a balloon to carry twelve men on a flight to the Pole. Six years later Sivel, another Frenchman, planned a similar flight and shortly after that John P. Cheyne, an Englishman, revived Dr. Meissel's project. He planned, however, to use three balloons, which were to be operated together as a single unit. George Besançon, with whom Andrée had a three-months' course in the principles of aeronautics, and his partner, Hermitte, also had a plan to reach the Pole by air.

Perhaps it was while reading of the plans of some of these men that Andrée first became inter-

ested in the subject. We know that the idea did not come out until March 16, 1894, when Adolf Erik Nordenskjöld, well-known explorer and discoverer of the northeast passage, asked Andrée to come for a walk with him one evening after a meeting of a scientific society in Stockholm. He wished to consult Andrée about the use of balloons for further Arctic explorations. What he had in mind was the use of captive balloons sent out from the rim of the Polar Sea, especially in the Antarctic, from which observations could be made and photographs taken over unknown areas.

Andrée thought this an excellent idea. "But why not," he suggested, out of a clear sky, "cut the lines on the captive balloons and let them fly free for long distances, *why not use them to discover the North Pole?*"

Revolutionary though it was, the veteran explorer almost immediately saw interesting possibilities in the plan. Why would not the aerial route be the logical one to take, since the ground route was so arduous? Until late into the night they strolled up and down the long "Drottningatan" and discussed excitedly the use of a balloon

in finding the Pole. It was Nordenskjöld's stamp of approval from its very inception which lent so much prestige to the entire project among scientific men. His son-in-law, Lieutenant G. W. E. Svedenborg, was the alternate for the Andrée Polar Expedition in 1897.

It was Nordenskjöld who helped him prepare his figures on the cost of the expedition. 128,800 kronor, or about \$38,000, they estimated it would come to.

In passing, it is interesting to contrast that modest figure with the outlays involved in some other notable explorations, before and since. The cost of the voyage of Columbus has been reckoned at \$2115. Certainly several hundred thousand dollars were required by Peary in his persistent expeditions north. The voyage of the "Norge" probably cost not less than \$300,000. Byrd, in his great South Polar exploit, spent over a million and a half.

On February 13, 1895, in a speech before the Swedish Academy of Science, Andrée first publicly submitted his idea. In a carefully prepared paper, he outlined in clear, concise style, quite free from bombast and heroics, a plan for carry-

ing through his daring exploit. This paper, aside from its significance as a document, becomes interesting when we remember that Andrée included a copy of it among his private papers which he took with him in the "Ornen" and that it was found by the Isbojörn expedition on White Island.

"Ymer," a magazine published by the Society for Anthropology and Geography, of which Andrée was a director, printed the speech in Swedish, and its author clipped the pages out and took them with them.

Here in translation is the speech, as he gave it, and as he took it with him to 83 degrees north, 30 degrees east, and back again to White Island. Some of the more technical passages have been omitted, and others somewhat abbreviated.

The history of geographical discovery is at the same time a history of great peril and suffering. While forcing their way through unknown regions, across the vast deserts of Australia, Asia, or Africa, the prairies of North America, or through the forests of South America and Central Africa, the explorers have encountered dangers, endured hardships, and been obliged to conquer

difficulties, of which no clear idea can be formed by those who have never passed through similar experiences.

No field of research, however, has offered such great difficulties to the explorer as the Arctic Regions. On giving the matter due consideration, we shall find the reason for this in the great difference existing between the difficulties opposing the Arctic traveller and those that are encountered in a country with a temperate or hot climate.

In the latter, nearly every hindrance can be said to contain a means of success. Savages frequently bar the way of the explorer, but just as often, perhaps, they become his friends and helpers, and assist him in his efforts. Lakes and rivers may impede his advance, but they sometimes carry him forward long distances, at the same time furnishing him the means of subsistence. Even the deserts are not entirely devoid of means to facilitate the journey of the explorer. To be sure, the heat in some places extinguishes all vegetation; but in others it gives rise to a luxuriant vegetation that serves as a shelter from the burning rays of the sun. Another circumstance

in favour of the traveller in the desert is that he can gather knowledge from the natives as to what roads to take, the proper mode of travelling, etc.

In the Arctic Regions the case is quite different. Disadvantages are here seldom coupled with advantages, and the advantages are usually combined with a disproportionately large increase in difficulties. The cold only kills. It produces no oases in the icy desert, no vegetation, no fuel. To be sure, it creates a field of ice that invites to a journey; but this field is impassable, because it is covered with gigantic blocks, forming barriers which have hitherto proved insurmountable. The ocean currents may favour your advance; but, being filled with ice, they finally crush your vessel instead of carrying it to your point of destination. The perpetual sunshine in the summer lights your way; but at the same time it shatters the surface of the ice just enough to prevent progress either by boat or by sledge, and it transforms the deep covering of snow into a thick slush, in which travelling is extremely difficult and no resting-place can be found.

If we further remember that the Arctic explorer can engage in active travelling during a

brief season only, and that during the remainder of the year he is compelled to inactivity under the weakening influence of cold, together with darkness, while he has resort to the nourishment that is usually unsuitable and often insufficient, and that is always haunted by the consciousness, that the results he can attain will almost inevitably be meagre in comparison with those which can be secured by explorers in other parts of the globe; then it must be admitted that Arctic research offers drawbacks which are materially greater than those encountered by geographical explorers in other places.

Now, let us examine into what means have been employed for the purpose of crossing the Arctic plains. We then find that, practically, only one means of transportation has hitherto been used or even been available for use—the sledge. In the various trips undertaken, the only difference in utilizing this agent has consisted in whether human beings or animals were employed to drag the sledges. Which of these two modes of propulsion is to be preferred, I am unable to say; I merely wish to call attention to the fact, that both have proved failures, although new ef-

forts to make them a success have repeatedly been made. The fact remains that, in the attempts made for centuries to cross the polar ice, numerous lives and vessels have been lost and large sums of money wasted without accomplishing the desired end.

It would seem as if it were about time to look into the matter carefully, with a view to ascertaining whether there is no other means of transportation than the sledge available for a journey in the regions referred to. We need not pursue the investigation very far to discover such a means, one that appears to be created for the purpose in question. I refer to the balloon. Not the perfect navigable balloon, however, that has been constantly looked for, and which is worshipped because nobody has ever produced one; but that which is already in our possession and is judged so unfavourably because people are prone to see its defects only. Still, I venture the assertion that such a balloon is capable of carrying an exploring-party to the Pole and home again. It is possible, with such a balloon, to cross the Arctic plains.

This assertion may appear to some rather rash

—even foolish; but I am convinced that a different judgment will be passed when my reasons have been presented. It is necessary, however, to cast aside old prejudice, and let facts talk.

In the first place, I desire to emphasize the fact that the problem of reaching the Pole, or, generally speaking, to make a journey across the Arctic deserts, is not a purely scientific, but a technical problem. The results to be achieved are, of course, of prime importance to science, whereas it belongs to the engineer to devise the means by which the desired end is to be accomplished. When experience has taught us that certain difficulties exist, and it has proved impossible to overcome these obstacles by means of the technical facilities hitherto available, it is to the engineering profession that we should turn with our question as to the feasibility of procuring better resource for overcoming the difficulties. So far, engineers have been unable to satisfy us in this respect; but today the case may be said to be different. If we now put this question to the aëronautical engineer, placing before him the requirements that ought to be fulfilled, we can expect to obtain an answer in the affirmative.



A contemporary artist's conception of Andrée's balloon.

In my opinion these requirements are as follows:—

1. The balloon should be of sufficient carrying power to enable it to carry three persons, together with all necessary instruments for making observations, provisions, etc., for four months, and ballast, all estimated to weigh about 3000 kilograms.

2. The balloon should be of such impermeability that it can be kept afloat for a period of thirty days.

3. The filling of the balloon must take place in the Arctic Regions.

4. The balloon should be dirigible to a certain extent.

The question, then, to be put to our aeronautical engineer of experience is, "Can you place at our disposal a ballooning outfit of the above description?" and he will be justified in answering, "Yes, I can," as I will now proceed to show.

For the Paris exhibition in 1878, Henry Giffard manufactured a captive balloon, having a diameter of 36 metres and a capacity of 24,500 cubic metres. The weight of this balloon (fully equipped) was 17,000 kilograms, and, when filled

with hydrogen gas, it had a surplus carrying power of 12,000 kilograms. It ascended about fifteen hundred times, and carried thirty to forty passengers each time. This balloon, consequently, had a carrying power exceeding by 9000 kilograms that required of our polar balloon. As it is well known that, since the time of Giffard, a number of balloons have been made fully equaling in carrying power the proposed polar balloon, it is evident that the problem involving the manufacture of a balloon that will satisfy requirement No. 1 has long since been solved by the arts.

With reference to a well-made balloon's power of holding gas, very favourable experiments have been made. According to practical tests made by Poiseuilles and Graham, it has been possible to make a balloon, 8 metres in diameter, of such impermeability that it lost only 6 kilograms of its carrying power in a month. As the loss in question is directly proportional to the area of the balloon, it is reasonable to assume that a balloon having a diameter of 23 metres, which is approximately the size needed for the Arctic journey, will, under favourable circumstances, lose no

more than 50 kilograms in 30 days. But even if a greater loss should be sustained, it is evidently possible to confine it within such narrow limits that the safety of the balloon will not be endangered, and requirement No. 2 will be fulfilled.

I will now proceed to the third requirement, and discuss the possibility of filling the balloon in the Arctic Regions. No technical difficulties in this respect will be found to exist. It is well known that, to meet the demands arising from the use of balloons in military service, portable hydrogen apparatus have been constructed which are efficient, easy to manage, and cheap. By means of such an apparatus of ordinary size, about 150 to 200 cubic metres of hydrogen gas are easily manufactured per hour, and consequently it will be possible to fill a balloon of the size in question in the brief time of thirty to forty hours.

But there is still another means available for the purpose. Nowadays hydrogen gas is offered for sale in the market, compressed in cylinders to a pressure of 100 to 200 atmospheres. Each cylinder contains about 3.5 cubic metres of hydrogen (of atmospheric pressure). These cylinders are conveyed to the place where the gas is to be

consumed, and all that is necessary is to provide a suitable pipe, and open the cocks in the cylinders. In order to supply the proposed polar balloon with gas, about 1700 or 1800 such cylinders would be needed.

As it is hardly advisable to let the filling take place in the open air, a little more complication will be necessary. Probably, the best plan would be to fill the balloon in a shed, temporarily erected for the purpose; this shed would offer a protection from the wind, and in it the balloon could remain sheltered while waiting for an air-current of a direction and velocity favourable to a start.

Similar balloon-sheds have been constructed in several places abroad—for instance, at Aldershot and Versailles—and the building of one for the polar balloon presents no obstacles that cannot be overcome. From what has been said above, it is evident that a balloon can be filled in the Arctic Regions with the same ease as at a gas-works or in the field—as is now done for military purposes—and it is safe to say that, whatever demands will be placed on the arts in this respect, they will be satisfied.

In dealing with the three requirements so far discussed, I have been able to base my conclusions on well-known facts, and to cite the authority of experienced and skilful men. With reference to the fourth requirement, involving the necessity of procuring a balloon that can be steered to a certain extent, I am not in possession of the same advantage, as it is only possible for me to refer to my own unpretentious labours in this field, and to the slight experience that I have been in a position to gather. Therefore, when I undertake to base my following argument on such frail ground, I do so because I positively know that I am not mistaken in saying that a balloon like the proposed polar balloon actually can be steered, and this in a considerable degree. The truth of this statement is quite evident to me, as I have had the opportunity during one of my balloon voyages, undertaken with a view to preparing a polar expedition, to test an arrangement by means of which steering can be done.

This experiment, the cost of which was defrayed by Mr. Douglas Kennedy, of Gothenburg, took place on July 14, 1894, and a complete account of it was presented to the Swedish Academy

of Science on November 14, the same year. Regarding details, I must refer to this account, and will here only touch on the principle of the arrangement, and a few of the most important results obtained. The principle consists in providing the balloon with an adjustable sail and one or more guide-ropes, which are allowed to drag on the ground. The function of these ropes is to retard the motion of the balloon somewhat, so as to cause it to move with less velocity than the wind; the difference thus produced between the velocities of the wind and the balloon is utilized by means of the sail. The balloon is thereby forced to deviate from the direction of the wind by an amount depending on the size and direction of the acting forces.

By means of a steering-apparatus of this description, I was able to cause my balloon to deviate, on an average, 27° from the direction of the wind. At times the deviation even amounted to 40° . Though it might seem as if a deviation of 27° were of very little value, yet it is in reality of very great importance, especially when long distances are to be covered. Let us suppose, for

instance, that a balloon is travelling along with a current blowing in the direction from Cork in Ireland *viâ* Hull to Copenhagen in Denmark. If this balloon is without a steering apparatus, it will be impossible to pursue any other course than along the straight line connecting these cities; no points at the side of the connecting line can be reached. On the other hand, if the balloon is fitted with a steering apparatus by means of which it can be diverted 27° from the direction of the wind, it will be possible to steer the balloon from Cork *viâ* London to Brussels in Belgium, or *viâ* Edinburgh to Bergen in Norway, or to any place inside of a triangle whose vertices are located at Cork, Brussels, and Bergen. Thus, even in making such a short trip, it is a matter of considerable importance to be able to divert the balloon 27° from the direction of the wind, and the longer the distance to be covered the more valuable this feature will become. When it is a question of traversing entirely unknown territory, the chief object of the journey being geographical exploration, still greater advantages will be gained by the steering-arrangement, as it is then,

more than in other cases, necessary for the aëronaut to be able to govern the movements of his balloon.

Even if we were to suppose that the steering-apparatus of the polar balloon will be no more efficient than the temporary arrangement used on my journey previously referred to, I feel justified in venturing the assertion that the polar balloon will not be like a vessel drifting at the mercy of the winds, but will in a large measure be under the control of the aëronaut.

Requirement No. 4 is thus disposed of, and I hope to have fully shown that the aëronautical engineer is perfectly justified in claiming to be well able to furnish a ballooning outfit that will satisfactorily meet all demands, and be entirely suitable for the purpose in question.

EQUIPMENT AND COST.

Before presenting my views as to the proper method of conducting the journey, I will specify more in particular of what, in my estimation, the balloon outfit and other equipment should consist.

The balloon should be made of two or three

thicknesses of stuff; it should have a capacity of 5000 to 6000 cubic metres, and be filled with hydrogen gas. It must be provided with sails, and have several guide-ropes, the latter perhaps made of impregnated coco-fibres, in order to enable them to float in water and cause the balloon to remain at the same height above water as above dry land or ice. In addition, there should be freely suspended from the balloon a large number of heavy ropes—ballast-ropes—which would serve partly as ordinary ballast, and partly as an automatic safety apparatus, in case the balloon should unexpectedly descend very low. Such a downward movement may be caused by a sudden fall in the temperature of the gas, or by a heavy downward gust of wind. When this happens and the lower ends of the ballast-ropes drop to the ground, the balloon will be relieved of a corresponding portion of its weight, and consequently its descent will cease before the basket comes in contact with the surface. All the ballast-ropes, as well as other things, which are to be thrown out, should be numbered, the numbers being inscribed on metal-plates attached, and a record should be kept of the time and place when

they are detached from the balloon, in order that, in case they are afterwards found, information may be gathered as to the movements of the ocean currents and ice-fields.

The suspension-circle should be provided with a floor and a guard-rail, so that it may be used as a depository or as a bridge in manœuvring and when making observations. The basket should be spacious and comfortable; it should contain berths for three people. The roof of the basket, which will also serve as a place of observation, should, like the suspension circle, be surrounded by a guard-rail. In addition, the basket should be provided with floats, and be suspended in such a manner that it can be quickly—preferably by a single grip—Disconnected from the balloon; in case of an emergency, the occupants will thus be enabled to save themselves at sea, when a vessel heaves in sight, by descending to the surface, and, if a heavy wind is blowing, ridding themselves of the balloon.

There should further be included in the equipment a sledge, a canvas boat, a tent, arms and ammunition, and provisions for four months, all

with a view to making a rescue possible in case of mishap to the balloon.

I wish to emphasize, however, that in providing equipment for the expedition, the character of the latter as being a *balloon expedition* must not be lost sight of. It is *by balloon* the voyage shall be made, and it is to the balloon that the travellers must cling. The life-saving apparatus, therefore, will have no other function to perform than the life-boats and life-buoys on board a ship.

It is hardly necessary to add that landing-appliances of all kinds, in two or more sets, should be carried, and that the balloon should be fitted with an exploding-line. A rope ladder should be brought along, for use in case a chance to visit the surface should occur. In the latter event, attempts can be made to haul on board a sufficient portion of the guide-ropes to allow the balloon to drop as near the surface as can be done without danger, whereupon a descent is attempted by the ladder. In this manner it may be possible to land without loss of gas.

As open fire must not be used on board, the

equipment should be supplemented by cooking apparatus heated chemically or by electricity.

Among the instruments necessary for the expedition I will mention, in the first place, those needed for making determinations of position and time; further, instruments for determining velocity and altitude, and a complete set of meteorological instruments. Finally, the equipment should include a complete photographic outfit. Such an outfit is absolutely necessary, as it is impossible, during the rapid progress usually made in a balloon journey, to make accurate maps of the country traversed. The mapping can be done only by the aid of photography, and this agent must be utilized to a very great extent. Nothing should be omitted that can contribute towards securing excellent photographic work. Besides, outline sketches of the landscape should be made. By these sketches and photographs it should be possible to preserve the essential discoveries of the expedition, even if the members should be brought into such a dilemma that they are unable to save the whole extensive photographic records.

According to the estimates, the cost of the un-

dertaking need not exceed the sum of 129,000 kronor.

The chief object of the expedition shall be to explore the northern Polar Regions.

The party will leave Europe early in the summer of 1896, in time to reach the Norwegian islands situated near the north-west corner of Spitzbergen, by the middle of June. On one of the Norwegian, or at other suitable place, the balloon shed will be erected; when this is completed, the balloon will be filled, and everything be made ready for a start at a few hours' notice. The balloon should be so balanced that, when free, it will travel at an average height of 250 metres above the surface, i.e. *below* the lowest clouds, but *above* the fogs at the surface.

The start is to be made in July, as soon as the weather will permit, i.e. on a clear day, when a brisk south, or nearly south, wind is blowing. It is quite essential that the wind should be brisk and have this direction, in order that the balloon may quickly travel far into the unknown territory and approach the pole. As this is a matter of prime importance to the success of the undertaking, careful attention should be paid from the

start to the influence of guide-ropes and steering-apparatus on the motion of the balloon, so as to hasten the approach to the Pole.

The time needed to reach the latter will, of course, depend on the velocity and direction of the wind. Under favourable circumstances, the trip will be made in a very short space of time. With a wind-velocity equal to that which, on November 25, 1870, carried a French balloon from Paris to Livfjeld, in Norway, the journey from Spitzbergen to the Pole would occupy only five or six hours. If the polar balloon travels at the same velocity as my balloon on November 29, 1894, when I covered the distance from Gothenburg to Gotland, it will take 10 hours to reach the Pole. Finally, if the speed of the balloon is assumed not to exceed 27 kilometres an hour, which is the velocity arrived at according to the calculation given below, by taking into consideration the average wind-velocity at 250 metres above the surface, then a time of about 43 hours will be consumed by the trip from Spitzbergen to the Pole. A moderate velocity is preferable, inasmuch as it will allow of making observations

in greater number and with more accuracy than is possible when the velocity is great.

If the wind should turn unfavourable, and prevent the pole from being reached in the early part of the journey, the exploring party should attempt to remain at as high a latitude as possible, and profit by the first favourable breeze that can carry them to their point of destination. It is probable that such favourable opportunities will arise more than once during the voyage, and they must, of course, be improved, provided that this can be done without such great losses of gas, ballast, and time as would interfere with making a safe homeward journey.

It is chiefly the central portion, *i.e.* the most inaccessible part, of the Polar Regions that it should be the aim of the expedition to explore, and the exploration of the boundaries that connect with the portions already known should be made a matter of secondary consideration. Apart from the geographical work, extensive meteorological observations should be carried on, and all other data gathered that will be of general interest.

The stay in the unknown regions should be of such long duration as circumstances will permit, and if chances to visit the surface should occur, they must be improved. The course of the homeward journey should be so chosen that the main direction of the whole trip will be along a line drawn from Spitzbergen through the pole to the northwest part of North America or the northeast portion of Asia, in the inhabited parts of which the landing should be made.

If the journey is kept up for thirty days, it will, according to the calculations given above as to the probable average speed of the balloon, cover a distance of about 19,400 kilometres. The trip from Spitzbergen through the Pole to Behring's Strait direct—a distance of 3700 kilometres—would not consume more than six days, or one-fifth part of the total time that the balloon can be kept afloat.

What has been said above might suffice. But I cannot help adding a few remarks which will tend to show that not only is it *possible* to cross the Arctics by balloon, but that these regions are particularly well suited for balloon voyages. On giving some thought to the subject, we shall find

that those peculiar features of the Arctic Regions, which have heretofore proved a great obstacle to polar expeditions, become advantages when the journey is made by balloon.

In the first place, I will call attention to the great advantages arising from the fact that the sun, at the season when the trip is to be made, always remains above the horizon, so that the surrounding landscape is never kept by darkness from the view of the explorers. The sun continually lights their way and enables them at any moment to take photographs of the country below. They are not obliged, as is the case in parts of the globe where light and darkness alternate, to anchor their balloon every night, and incur the risk of a heavy gale destroying the harnessed balloon. Moreover, as no stops need be made on account of darkness, the number of days employed in making the journey will be only about one-half of what would otherwise be the case.

Another advantage derived from the perpetual sunshine is that the temperatures of the balloon and the air are kept very uniform, and that, consequently, there will be but slight variations in the carrying power of the balloon. The lowest

temperature observed in the month of July, 1883, at Cape Thordsen, in Spitzbergen, was 0.8° C., and the highest was 11.6° C. The lowest average temperature during the day in July was 2.2° C., and the highest 8.2° C. It is thus evident that the daily variations in temperature at the season referred to are very slight, and that the polar balloon will not be disturbed in its motion by great fluctuations in the temperature. In the tropics, on the other hand—for instance, in Central Africa—a balloon would be strongly heated during the day, and considerably cooled at night, whereby great losses of gas and ballast would result.

Another circumstance in favour of making the Arctic journey by balloon is that the surface passed over is glossy and free from vegetation. Consequently, the guide-ropes will slide along freely and evenly, making the motion of the balloon steady, which is a matter of great importance in taking photographs, and when making observations with the sextant, anemometer, levelling-instruments, etc. The case is quite different when the guide-ropes slide through the foliage of trees, etc., as the balloon is then subjected to shocks, which are detrimental to the

work on board, more especially as the variable resistance of the guide-ropes causes the balloon to move up and down. All these are facts that I have been in a position to observe in my experiment with the steerable balloon referred to above.

A third item of importance is that electrical discharges hardly ever occur in the Arctic Regions. Thunder and lightning are almost unknown in that part of the globe. About the equator, on the other hand, electrical discharges together with rain are very common occurrences, and as a balloon with wet guide-ropes naturally forms an excellent conductor for the electricity of the atmosphere, the danger that it would be struck by lightning would be overwhelming. In the Arctic Regions no such danger will exist.

A matter of no less importance to the success of the journey is, that but little snow falls in the Arctic Regions. Somebody has remarked, that an expedition of the kind proposed would come to grief if a single heavy snowfall occurred, that loaded down the balloon with, say, 30 kilograms of snow per square metre. I admit that such a load on the balloon would be extremely dangerous. However, judging from the observations

made during the Swedish expedition to Spitzbergen, it is safe to say that nothing of the kind will happen, as not even the sum of all the snow-falls during June, July, and August amounted to 30 kilograms per square metre, and the snow-fall in July—the month when the journey should be made—was only 6.8 kilograms per square metre. Besides, it should be borne in mind that the snow that falls at a temperature above freezing will melt, and that which falls at a temperature below freezing will blow away—since the balloon does not move with the same velocity as the wind—and that, finally, the snow or ice that accumulates on the balloon will to a large extent evaporate, the evaporation in these regions being very considerable during the season in question, or two or three times as great as the snow-fall. Therefore no difficulties need be feared from this source.

Neither is there any great danger that gales will be encountered, as in July gales appear to be very rare occurrences. This statement is based on the fact that the maximum wind-velocity observed in July by the Swedish expedition in

1882-83 was 16.8 metres a second, and that the average velocity did not exceed 3.8 metres a second. Similar conditions were observed on the American side, at Fort Conger.

Finally, I desire to call attention to the fact that, although no balloon journey of such duration as that proposed by me has ever been accomplished, experience is not lacking which proves the possibility of making balloon journeys last several days. In France, two prominent *aéronauts*, Wilfrid de Fonvieille and Maurice Mallet, have recently completed a five days' journey with a balloon that is scarcely larger than my balloon *Svea*. They travelled in the daytime only; at night they anchored their balloon near a village or town, and, after placing men to guard it, made themselves comfortable at some hotel. In this manner they proceeded for five days, and would have kept on still longer had they not suffered great loss of gas by ascending to a considerable height, and had not, in addition, the weather become unfavourable. Their object was accomplished, however, which was to show that long balloon journeys are possible.

Making a brief *résumé* of what has been said above, we find that not only is it possible to traverse the Polar Regions by balloon, but that there is also much which speaks in favour of this mode of travelling.

The methods heretofore employed to cross the polar ice have not led to the desired result, and there is no reason to suppose that future attempts of the same nature will be more successful. The well-known Arctic traveller, Sir George Nares, on returning from his last expedition, declared that he belonged to those who emphatically deny the possibility of reaching the north pole by vessel or by sledge. Still, it cannot be denied that, if we continue on the same lines as before, we shall gradually increase our knowledge of the Arctic Regions. But this growth in our knowledge is likely to proceed at the same slow pace as before, and a century or more may elapse before the desired end is finally attained. Our experience regarding sledging-trips in the Arctic Regions will gradually be enlarged, but it is probable that the difficulties to be overcome will become greater as higher latitudes are reached. Each minute of latitude conquered by the same means as before will,

no doubt, cost hundreds of thousands in money, and involve great sacrifice of human lives.

With these facts before us, it is only natural to look for other means of accomplishing the difficult task, and every reasonable proposition with a view to solving the problem should be carefully considered. The solution here proposed, to explore the Arctic by balloon, is not based on obscure theory, but on clear and indisputable facts, which appear to me quite convincing. They teach us—(1) That a balloon can be sent far into the Polar Regions; (2) that it can be kept afloat there a sufficiently long time for the purpose in question; (3) that such a balloon can carry the exploring party there and back; and (4) that many of the peculiarities of the Arctic Regions that have heretofore been a great hindrance in making Arctic exploration, prove to be factors in favour of an expedition by balloon.

Besides, is it not more probable that the North Pole will be reached by balloon than by sledges drawn by dogs, or by a vessel that travels like a boulder frozen into ice? And can anybody on good grounds deny that it will be possible, by a single successful balloon journey, to acquire in a

few days greater knowledge of the geographical aspect of the Arctic Regions than would otherwise be obtainable in centuries?

It was in these words that Andrée first told his plan, and before a group of the most distinguished scientific men of Sweden. It met with a rather favorable response; and, after initial discouragements, he experienced little actual difficulty in securing adequate financial backing.

Alfred Nobel, inventor of dynamite, better known as the donor of the annual Nobel prizes, called in person on Andrée at the Patent Office on May 10th. They had met once, eight years before that when Mr. Nobel visited the office to discuss one of his patents. At that time they had begun with an argument as to the merits of that particular patent and gone on from there to a heated debate about "everything between heaven and earth," according to Andrée. When the inventor again appeared, he thought he had to resume the argument.

But Nobel explained that he had heard about his North Pole project and wished to contribute some suitable sum, say twenty thousand kronor, in case the subscription list was not already

closed. The fantastic idea of a flight to the Pole by balloon appealed to the old man.

Andrée assured him that he would be very grateful for the contribution and that as yet money to cover the cost of the expedition was slow in coming in. Six days later Nobel returned to inquire about the status of the fund. It was almost at a standstill. Nobel promptly offered to donate half of the sum required if the full amount were subscribed within two months.

Nineteen days later the other half was promised. It had not been necessary to use a single one of the hundreds of popular subscription blanks which Andrée had had printed. Armed with Nobel's offer he had gone to the King of Sweden, and received a generous donation. Baron Oscar Dickson of Gothenburg and Professor Gustav Retzius, an old teacher of Andrée's, and his wife subscribed the balance. Colonel Sellstrom, a Swedish patriot from Buenos Aires, sent an additional thousand dollars to cover any unforeseen expenses—the "unexpected" being always the expected in expeditioning.

At the session on Polar Exploration, which occupied the morning of July 29th, 1895, during

the Sixth International Geographical Congress in London, Andrée gave his plan again, just as he had in Stockholm. Few of the distinguished explorers of that day were absent. Admiral A. H. Markham, of the British "Alert" expedition in 1875 was there. General A. W. Greely, of the "Proteus" expedition of 1881-84 participated actively in the discussion which followed Andrée's address. Dr. Neumayer who financed Nansen's "Fram" expedition, and Dr. John Murray of the "Challenger" expedition, were present and had things to say about Andrée's plan.

Organized in 1871 in Antwerp, when the statues were unveiled of the two famous geographers, Mercator and Orelius, the congress had only met five times before. Those who attended came from all parts of the globe bent on serious and constructive business. Each morning abstracts of all speeches for the day were placed in the pigeon holes set aside for the delegates, so that they might have in advance some idea of the subject matter of the talks to come. They gave their fullest attention to the speaker.

Some of his audience considered Andrée's plan

thoroughly ridiculous, and freely said so. Others thought it might have some practical elements. One man openly praised it. As each in turn spoke his opinion Andrée gave them his closest attention and made a note of each objection.

To most of those present it seemed a mad enterprise. However, Colonel Watson, British representative at the Congress, and well-known balloon engineer, said he was inclined to think that a balloon could be kept in good working condition in the Arctic regions. He said he knew of one balloon which was filled when the snow was on the ground and held its gas well for three weeks. "That the attempt will be attended with great risk is a foregone conclusion," he added, "and no one knows this better than Herr Andrée himself; but many expeditions are worth undertaking which are attended with risk. Herr Andrée may never come back, it is true, but nevertheless the attempt should be made, and if it be crowned with success, he will have done more than any one else before him. . . . I cannot but feel that this is the most original and remarkable attempt ever made in Arctic exploration."

Colonel Watson's opinion was significant be-

cause he was the most experienced balloonist present.

"Our ballooning Arctic friend," General Greely of America called *Andrée*. With some asperity he appealed to his "horse-sense" with the suggestion that he explore some more important part of the globe than the North Pole. On the subject of the expectation of life of his balloon he said:

"Let me tell you that a balloon is subject to a minimum loss each day of 1 per cent of its gas. Hence, if the life of a balloon is to be six weeks, it will at the end of that time have lost about 40 per cent, or nearly one-half its carrying power; and if Herr *Andrée* has succeeded in obviating this, then all I can say is that I hope, before starting, he will take us into his confidence."

There was no personal rancor in General Greely's frank statement of opinion. In 1901 he unstintingly, in his polar history, called *Andrée's* "the most daring of all schemes of polar exploration."

When his critics had finished talking *Andrée* looked over the notes he had made, took up each objection, disposed of it and crossed it off his pencilled notes. He told them:

"Well, when something happened to your ships, how did you get back?" He queried his audience, so many of whom were Arctic leaders in their own right. "I risk three lives in what you call a foolhardy attempt, and you risked how many? A shipload."

Of points his statements held plenty. Had not thirteen of General Greely's party starved to death on Cape Sabine only twelve years before?

With a final stroke of his pencil Andrée crushed the notepaper in his hand and slowly repeated some of Greely's words:

"*He* hopes I may succeed in *trying* to raise the money and at least make the attempt." He paused a second and with a vigorous swing of his arm added exultantly, "*Well, I haf got the money!*"

The Great Hall of the Royal Colonial Institute rang with the cheers that followed this dramatic climax. Some of those who had been most skeptical admitted that the plan might prove workable. And no one doubted that Andrée would make the attempt. Many felt as positive as he himself did that he would surely be with them at the next meeting of the Congress in Berlin in 1899.

6

Preparations

“DON’T hurt Mr. Andrée.”

That is the heading of an article that appeared in the New York Times on May 31, 1896. The story described a leaflet prepared in advance of Andrée’s projected flight, “tens of thousands of which have been circulated throughout Scandinavia, Finland, Siberia, and the north of Russia.” The circular itself sets forth in four languages and in detail sometimes unintentionally humorous, the appearance of the “inflated air bladder” which is graphically depicted in several drawings. As a matter of fact, probably few indeed of the natives for whom the document was designed possibly could read it.

“The drawing shows how the descending globe was followed by grown-up people and children who are helping to get the man in the basket safely out. By this it will easily be seen that the air globe cannot cause harm even to small chil-

dren. It is, therefore, not necessary to be afraid of the globe and the big people in the basket, but the globe should be followed and the people be assisted in their descent. They should be given a kind and friendly reception. . . . They should be honourably conducted to the nearest authorities. . . . Any expenses incurred will be repaid by the King of Sweden. . . . Do not be frightened by the globe but help the men in every way in their descent from the sky to the ground. Do this for the good and merciful God and for the mighty Czar."

Not only in this country, but all over the world Andrée had created a tremendous sensation with the announcement of his plan to reach the Pole. And there is nothing the world loves so well as a new sensation. The sheer daring of this Swedish adventurer had fired a universal curiosity.

"Say, Mom, my geography teacher says there's a Swedish feller thinks he can get to the North Pole in a balloon! Do you think he'll make it? Do you, Mom?" youngsters in Minneapolis and Sydney and Marseilles and Budapest were asking in one way or another. Grown-ups were poring

over current newspapers and magazines, reading the polar plans and conflicting opinions concerning them.

And of conflict there was plenty. Those who believed Andrée would win through were as vociferous as those confident it was an utterly madcap adventure destined to end in tragedy, should it ever actually get under way—which, the critics felt, was unlikely.

Andrée's own friends, too, were divided into opposite camps, and about this the explorer himself became increasingly sensitive. The doubters in his eyes were black sheep, to be avoided. Especially with his feminine acquaintances was he particular on the subject. "Love me, love my balloon," represented, in effect, his attitude to all who knew him.

Andrée did not allow the ever-increasing interest and controversy to sweep him off his feet. He calmly set about his great adventure, personally supervising every smallest detail of the preparations.

The success of his plan hinged on three main factors. First and foremost the construction of a balloon which could stay aloft thirty days or

more. Second, the accuracy of the estimate that the wind currents would blow them to the Pole in five or six days, thus providing a theoretical safety margin of perhaps twenty-five days. Thirdly, the successful performance of the system of drag-ropes and sails in manœuvring the balloon, in itself a somewhat academic theory of his own, in the past only partially tried out.

The factor of wind obviously must remain a matter of chance, but the two other considerations were entirely in Andrée's hands. So he proceeded to arrange for the construction of the balloon with the utmost deliberation and care.

In order to check up on his own observations in his studies on the subject and his practical experiences with "Svea," Andrée spent several months during the summer of 1895 on a trip to France, England and Germany, where he talked with leading balloonists and discussed the details of the balloon, means of increasing its flotation life, and the practical application of the use of drag ropes.

We know that M. Godard, the French balloonist, approved of Andrée's plan, and Professor O. Baschin describes in friendly detail his visit to Germany. Previous to his coming they had experi-

mented with the methods of controlling balloons by means of drag ropes. Andrée's work with "Svea" in this connection, he tells us, contributed more than that done by anyone else toward helping balloonists to make progress in this direction. They had checked his observations, practically found them sound, and added their results to the record of aerodynamic knowledge of the day.

Professor Baschin reports that German balloonists on the whole were skeptical about the plan to reach the Pole by air. But after talking it over with Andrée, Baschin himself became such a thorough convert that he began defending the project on every hand, and even decided to join the expedition. He states that having met Andrée in person he was so convinced of his energy, intelligence, and competence, as well as with his background as an explorer, physicist and balloonist, that he did not doubt for a moment that he would achieve the goal he had set himself. This man who had the bearing of an English officer, he says, had a genius for winning others over to his own point of view. One felt that he knew exactly what he was talking about and made no effort to minimize the difficulties involved.

Whether he made volunteers for his expedition out of other balloonists in all the countries he visited, is uncertain. At any rate we know that the only reason why Professor Baschin was not a passenger in *The Eagle*, was Andrée's edict "None but Swedes can go."

In the 100-foot gallery of the balloon factory of M. Henri Lachambre at Champs de Mars, in Paris, the great gas bag was made of six hundred pieces of pongee silk from the best looms in Lyons. A small scrap of each piece was tested for strength in both directions, that of the warp and of the woof. Then the pieces were classified according to their strength and were subjected to the operation of cementing or joining together.

To two engineers of the Nordenfelt Company, an international munitions works of Swedish origin, Andrée had entrusted the task of testing the material used for the construction of the balloon. After the pieces of silk had been stitched and cemented together they were all tested one at a time by a dynamometer. The committee of experts appointed to follow the manufacture of the balloon step by step and examine minutely all

the passenger car was fitted out to serve as both a home and a working laboratory for the three men for a long time. It was a double-decker affair. Below was a snug sleeping compartment and photographic dark room. Only one member of the party could sleep at a time, a mattress and a sleeping bag of reindeer skins being provided for the purpose. Around the walls of the "berth" of the car books, maps, toilet articles and kitchen utensils were arranged so as to be easily accessible. All the materials required to develop and print photographs were also stored in this compartment. With a camera especially designed by Strindberg for the purpose, they planned to take hundreds of pictures from the air, with the continuous daylight which would be available in the Arctic summer. Obviously the absence of darkness at that season was a boon for photography as well as observations and, indeed, all features of the expedition. Guns and ammunition were stored on the floor of the compartment.

Above the basket was the observation balcony which had no roof over it, but which was protected from the weather by the balloon itself and the bearing ring. The instruments included all the

navigation aids known at that time, and others required for astronomical or meteorological observations. Many of these instruments had been invented or adapted by Dr. Ekholm and by Strindberg. Two members of the party were supposed to be in this gallery all the time while the third slept.

On the bearing ring directly under the balloon were hung the major part of the supplies, including twelve canvas bags containing a sledge, a collapsible boat, sails, and emergency equipment, and thirty-six bags of food. The pigeon cotes and the message buoys, the bags of ballast and the ballast ropes were also carried here.

It has been said that Andrée acted in an ill-advised manner when he placed his provisions in packages up in the ropes of his balloon rather than in the basket in which he and his companions were to live. It was maintained that if the basket had been overturned the balloonists would have been spilled out, and the balloon, relieved of their weight, would carry away with it their precious food. But Andrée's conclusions in this matter showed him to have been more far-sighted than his critics. His idea was that the balloon might

descend into the sea, in which case he and his companions would be compelled to take to those very ropes themselves. Then by cutting loose the basket beneath them, the balloon would rebound into the air and carry upward not only the aeronauts but their precious food as well.

The car was built round in shape, instead of square, so as not to interfere with the steering device, which was Andrée's own invention, and had been previously experimented with by him on the *Svea*. Hitherto aeronauts had only been able to control the altitude at which they sailed, by dumping ballast and by releasing gas through the hydrogen valve. With this system of three guide ropes and three sails Andrée hoped to be able to tack the balloon as much as 27 degrees from the course of the wind. The operation required a heavy drag-rope which could be fastened to either side of the basket, swinging the balloon so that the sails between the bag and the basket would present an angle to the wind, spilling it in the direction away from which the course was to be deflected. This, they hoped, would enable them to bear eastward and eventually strike the coast of North America.

The three ropes were 1,017, 1,042, and 1,205 feet in length. The sails were rigged two from the bamboo spar projecting from the bearing ring, and one above the bearing ring between the suspending ropes. This central sail presented a spread of 800 square feet.

The preparation of the trailing ropes was interesting. They were of cocoanut fibre. For a hundred or more feet they were saturated in vaseline and tallow to reduce friction in passing over the ice, and also to make them float on top of the water if they dragged on the surface.

By means of the ropes Andrée hoped not only to assist in steering the balloon to a certain extent but to maintain an even altitude. It was planned to fly at between 50 to 200 meters above the surface of ice or water. The balloon carried 3748 pounds of ballast. The combined weight of the balloon and its contents was estimated at nearly five tons. The total cost of the balloon itself was a little more than \$10,000. At the time of the final take-off in 1897 probably \$50,000 had been expended on the expedition.

The larder included enough food for three and a half months which, coupled with the har-

vest of an adequate supply of guns and ammunition Andrée figured should keep the party alive for at least two years, if they were forced to come down and make their way back to civilization, on foot. Obviously the *location* of their descent held the key to the question. Should it be in a region reasonably populated with seals, birds and occasional polar bears, the problem of survival—as reckonable in the Arctic—was no great one. Stefansson, Nansen, Amundsen, Rasmussen, have demonstrated the practicality of “living off the country”—provided one know how. The weakness of Andrée’s plan as it related to an emergency return was that none of his party had experience in Arctic hunting and sub-zero existence.

At the time of the departure there was a vast amount of interest everywhere in the nature of the equipment. Endless questions were asked and countless queries sent directly to Andrée. Finally Dr. Beauvais, of Copenhagen, head of a house which supplied the expedition with some of its provisions, prepared a blanket report which answered the inquiries of the curious about the balloonists’ Arctic menu.

“The Andrée expedition has provisions for sev-

eral months," wrote Dr. Beauvais. "All the boxes in which the conserved food is kept are made of copper, as iron would have had a disastrous effect on the magnetic instruments carried by the expedition. To occupy as little space as possible they are made square instead of round. The food consists of every kind of steaks, sausages, hams, fish, chickens, game, vegetables and fruit. If these provisions have been saved, together with the food which the explorers can procure through fishing and hunting, they have sufficient provisions to last them two years.

"The expedition is also furnished with a new kind of lozenges of concentrated lemon juice. This is the first time these have been used by polar expeditions, and it is expected they will absolutely prevent scurvy.

"Finally, the expedition is provided with twenty-five kilos (about fifty-five pounds) of thin chocolate cakes, mixed with pulverized pemmican. To preserve this food against dampness it is packed in parchment, covered with it, a brittle metal composed of tin, sulphur and copper, and inclosed in air-tight boxes."

Each individual article of equipment was marked with the words **ANDRÉE'S POLAR EXPEDITION 1896**. The words were printed upon the wooden articles, engraved on the metal goods and painted with durable paint on the protecting covers, the bag of the balloon, the tarpaulin of the car and the ballast bags. Articles which did not afford sufficient space for the whole mark were stamped: **AEE'S PXP, 1896**. On the under side of one wing of each messenger pigeon was stamped the name **ANDRÉE**.

In addition to the conventional, cut and dried, utilitarian supplies carried by all Arctic explorers, **Andrée** worked out dozens of unique and intricate little concoctions, and he seems to have taken a boyish delight in showing them off to his friends. His chief pride was the cooking device or suspension kitchen which he contrived. It consisted of a can for boiling soup or stewing meat with a lamp below it for fire, the whole being suspended about twenty-five feet below the car by two hollow tubes. Down one of these tubes ran a cord. The cord would pull a lever, the lever would strike a match, the match would light the lamp and the

lamp would begin to cook the soup. When ready, the remote cook would blow down the other tube, put out the lamp and haul the whole lot up into the car. Dinner was served!

The object of this ingenious and impracticable-sounding contrivance was, of course, to keep fire as far removed as possible from the inflammable hydrogen gas in the bag. Whether or not it ever worked we do not know. There is no record of any meal having been cooked upon the flight, and no advance field test of the aerial kitchen seems to have been attempted.

From the meagre records subsequently recovered we only know that on the second day of the flight there was a fire in the gondola. Whether it started in the culinary department is undetermined. Obviously it was extinguished quickly.

Another invention of which he was very proud was a plan by which their one sledge could be converted into two sledges.

Last, and most important in the entire preparation, was the matter of gas for the balloon. That, the truly vital factor of the flight, offered a variety of problems.

To be sure, the choice of gas was not difficult



Two views of the balloon hangar at Danes Island.

because no other gas than hydrogen could be considered. It was a question of finding the best method of procuring and applying the large quantities required. The simplest means seemed to be to manufacture or buy the gas at home and bring it to Spitzbergen, compressed in steel cylinders. But this proved to be much too expensive. Andrée estimated that would have required an expenditure of about 100,000 crowns, or \$25,000, a sum which loomed large as expedition expenditures were reckoned in those days.

Therefore it became necessary to manufacture the gas at Spitzbergen itself, according to one of the methods which experience had shown available for the chemical production of hydrogen gas in large quantities.

"Ultimately I decided," wrote Andrée, "to employ a 'wet' method, where the risk of using ovens in proximity to inflammable hydrogen gas does not apply. We would make our gas with water, sulphuric acid and zinc or iron.

"Our experts, Ernst Ek and Axel Stake, decided that shavings of wrought iron and steel, mixed with sulphuric acid and water, would accomplish what we sought."

So 40,800 kilograms of sulphuric acid and 23,000 kilograms of iron filings were taken to Spitzbergen. And there, beside the hangar they established the first far-north gas filling station.

7

The Abandoned Effort

ON the evening of May 31, 1896, there was a lively farewell dinner for Andrée at an old inn outside of Stockholm, known as "Stallmästaregården." It was a beautiful Swedish summer night, the twilight lingering in the northern sky until the sun rose. Over a hundred of Andrée's personal friends, scientists, engineers, artists, and even the popular stars of the stage and opera, had collected to celebrate his departure.

Stimulated by the delicacies of the Swedish hors d'œuvres or Smörgåsbord and toasts in "schnaps" of white brandy, wines, punch and liqueurs, the diners were in high spirits. Andrée himself used alcoholic stimulants only when necessary to avoid toasting with an empty glass, but he was an entertaining after-dinner speaker and his gift of repartee never failed him. There were speeches, songs and more toasts. The whole company seemed to be in a state of patriotic

fervor. Thanks to Andrée and his balloon, Sweden was once more to become a conquering nation! The glory destined to revert to the balloonist would be reflected on the entire country!

"If faith and will-power alone sufficed to bring an enterprise to victory," wrote Prof. Gunnar Andersson some ten years later, "no scientific exploit would have been accomplished easier than Andrée's."

The press of the entire world had followed the project avidly and the Swedish papers naturally set the pace. Every piece of equipment was described in detail and new suggestions poured in from those whose chief concern was perhaps a desire to see their names in print.

"An outsider can hardly appreciate the thousand little details that must be settled in advance," said Andrée to an interviewer. "One must be sure that nothing has been forgotten. Today, for instance, I have been busy since five o'clock, for in the early mornings I have the quietest time for work."

"And you are not tired?"

He laughed.

"I am not tired, but I feel as if I had not

slept for months. The prospect of getting off seems glorious and when all is attended to I intend to sleep with a vengeance. It won't be for very long, however."

When the party left Stockholm a few days later the entire station plaza was filled with a shouting, adulating mob. The cheers at the departure of the train reverberated as though victory had already been won. Andrée, looking out over the crowd, shook his head, a little wistfully.

"No, this is mad. This we will have deserved only when we get back," he was heard to remark, half to himself.

In Gothenburg, where Andrée had started his later balloon trips and where his brother, Captain Ernst Andrée was living, the excitement was even greater.

On June 5th Baron Dickson, wealthy merchant and one of the sponsors of the expedition, entertained the party with a grand reception at his home. On the sixth, the night before they sailed a huge popular fête was held at Lorensberg Park. There were speeches and toasts; telegrams and cables were read. Nine hundred persons attended the elaborate banquet, at which the table

decorations consisted of great bouquets of flowers enclosed in pyramids of ice. The flames of the candelabra reflected in these miniature icebergs added an additional touch of glamor to the occasion.

There was another riot of farewell as the "Virgo" with flowing banners steamed out of the harbor at Gothenburg the next day. Andrée, balloonist and explorer of the Arctic after a fashion new and untried, was the hero of the day. The quays were crowded beyond capacity with thousands of people of Gothenburg,—from all parts of Sweden, and from other countries who had come to see the expedition set sail. All morning there had been parades; school children and their parents had come with flags and wreaths, singing songs for Andrée and his men. It was an event all-important to patriotic Sweden. They adored Andrée for the glory he had already brought to his country and for the still greater glories with which he would return. All the world truly seemed interested in the departure.

As the boat pulled out the three men, Andrée, Ekholm and Strindberg, stood on the deck in full

view. Andrée, they tell us, held himself very erect, solemn and serious. Ekholm wore an expression of detachment and disinterest in all the commotion; and Strindberg, so much younger than the other two, was smiling happily, enjoying the whole proceeding.

At Tromsö, last port of departure for Spitzbergen, the "Virgo" dropped her anchor on June 12th. Some geologists came aboard there. The total ships complement was fifty-one, including the crew and two carpenters. In addition to Andrée and his two companions there were Arrhenius, a hydrographer; C. Grönberg, a naturalist, and Henri Lachambre, maker of the balloon, to supervise its installation and gassing.

The "Virgo's" stewardess was Mrs. Hanna Westerberg. In his account of the expedition Henri Lachambre describes her as "a complaisant Swede wearing a coquettish little white toque of the comic opera type, with a pretty ribbon bearing the badge of the expedition." Hanna, it seemed, made three curtseys in a row and thereafter she and the gallant little Frenchman were firm friends. Each member of the expedition had a napkin ring of ribbons made by Hanna.

Lachambre's was finished off with the French tricolor. He quite rhapsodizes about her cooking, her specialty of specialties being *omelettes aux anchoix*.

Captain Hugo Zachau, skipper of the "Virgo," was jolly and "rounded physically and morally," according to Lachambre. Dr. Ekelund too, proved to be a very genial soul. The members of the party were so healthy that they seemed to have no need for a doctor as such and the three polar explorers also were in good spirits. All in all, they had a very pleasant trip of it, what with Hanna's excellent cooking, topped off with coffee and the aroma of fine Havanas, donated to the expedition by some generous individual.

On June 15th when the South Cape of Spitzbergen had been reached, Andrée wrote in his diary, "On board everything is fine and our existence is as care-free as possible. Just now I hear the fiddle begin to resound and it won't be long before the drum, that is to say an empty water barrel, will follow the example. The other 'musical' instruments, of more or less odd construction, won't be far behind. Even the dog 'Bell' howls, but not from joy, it seems, but



Landing the balloon at Danes Island.

Photograph from Wide World photos

rather as if he had had his tail caught in a door crack. For him, personally, it is no fun but the rest of us cannot scorn his wails, because on ship board nothing can be allowed to go to waste."

The next day the situation was not so pleasant. Andrée had finished his diary at nine the evening before and had gone to bed at ten, hoping for a good night's sleep. Instead he was roused by Captain Zachau shortly after midnight and at the mention of the word "ice" he was up on deck with a bound. There lay the "enemy" "high and thick as a wall of rock," blocking the course of the "Virgo."

But Captain Zachau had seen such sights before and by changing his course and picking his way warily he edged ahead. Of this night Andrée wrote: "The engine room telegraph began to turn and at last stopped at 'slow speed forward.' Then from the bridge came the command, 'North-east ahead.' But before long it was changed to 'West' and then 'Southwest' and finally—to my horror—to 'South.' Could north polar explorers hear a more repulsive command than 'steer South?' I, personally, cannot think of anything more disheartening to North Pole explorers,

especially if the engine dial at the same time says 'full speed.' "

On June 17th they had still been unable to pass Torrell's glacier but lay abreast of it, surrounded by thick ice to the north and west.

"We had supposed," wrote Andrée, "on account of the strong wind from the west and the accompanying drift ice, that the pack around Spitzbergen would be broken up, so that we could proceed north to Isfjord and debark the geological expedition there. We found ourselves compelled to yield somewhat, although we did not immediately attempt to go around the ice to the west, because we had good hope of the prevailing westerly winds being able to make a way near the coast. The "Virgo" therefore headed for the nearest port, Goes Harbor in Hornsund where she anchored the 17th of June at 5 P. M.

"We all looked like thunder clouds without silver linings," wrote Andrée. "But that matter was soon remedied. An old salt in Gothenburg had drilled into my head the advice: 'In case of depression, let them sleep and give them grub.' That suggestion we followed with the desired

effect. After breakfast the next morning we were ready for a trip ashore. All fifty on board seemed willing to take part."

Some scaled the mountain peaks with spy glasses to observe the ice conditions, "others went hunting and spoiled many valuable cartridges." Monsieur Lachambre took pictures and Andrée and Ekholm made astronomical and magnetic observations. At 2:00 P. M. all were back in excellent spirits and ready for another meal. The afternoon was also spent on shore and in the evening it began to blow from the east and by one o'clock in the morning the northeast storm came in full force and began to drive the ice blocks before it, "like jack rabbits." Every member of the crew listened with satisfaction to the howl of the storm, which meant open water.

Another day, the 18th, was spent in the same port but early on the 19th the "Virgo" started out for Danes Island. By four o'clock in the morning of June 20th they had reached the Isfjord and there they met another steamer which had arrived from Thomsö. Thanks to a more westerly course it had avoided the ice. At three o'clock in the morning of June 21st, the Virgo

reached the strait between the two "Norwegian Islands," from which the balloon was to start.

Andrée finally decided on Danes Island in preference to Amsterdam Island because it was sheltered on all sides by high mountains and opened out to the north upon the open sea. Also the house of Arnold Pike, an Englishman, was located just there and would serve as a convenient place to cache surplus supplies.

The very substantial little house had a dining room, bedrooms and a kitchen. There were stoves in all the rooms. The latches were rather poor, and blocks of ice were used to keep the doors closed. There was a garret just large enough to serve as a dove cote, and having installed themselves and their pigeons, most of the members of the expedition set about the primary task of getting up a balloon house.

To shelter the balloon, the parts of a house in four storeys in octagonal shape were put together. The different sections, which had been prepared in advance, were joined by means of bolts. Around the upper storey was a balcony, and two stairways led to the top of the balloon on the east and west side. The site for the hangar was

selected, and the snow removed so that its foundations could be laid. The building itself was erected very quickly by the crew under the direction of two master carpenters, the only interruptions being from storms.

Relieved of some of her burden, the "Virgo" was moved in closer to the shore so that the heavy crates containing the hydrogen generators and the crate with the balloon bag could be removed. For these a crude roadway of pine logs brought from northern Norway was laid. Otherwise the generator crates, some of which weighed as much as three tons, would have sunk hopelessly in the snow while being shifted to the vicinity of the balloon house, an operation which was finally accomplished by hauling them over the impromptu roadway with a pulley and tackle. The balloon case itself was installed in an annex to the hangar.

While the balloon was being inflated and they were waiting for the favorable wind, the expedition did not lack for diversion, or, indeed, for a considerable measure of luxury. The menu, we find, included such delicacies as caviar and smoked reindeer flesh, and the party found that Polar

bear steak, as cooked by Mrs. Westerberg, tasted like the finest beef. Traffic, too, was exceptionally heavy at Spitzbergen that season, and the several steamers with their groups of tourists helped to relieve the tenseness, such tenseness as the weary waiting naturally engendered.

After the balloon was filled daily tests were made of its tightness, and as to the amount of hydrogen gas it lost. On July 27th the balloon was at last ready to take off, but by this time the winds had become unfavorable. The meteorological record after that date tells a pitiful story of maddening daily discouragement. Instead of the strong southern wind which was essential, the calendar shows winds from due north or the northeast or northwest of much strength. On July 29th there was a fairly strong southwest wind which later shifted to northwest and north. All the winds which were from the south are registered as being "weak" or "very weak." Small trial balloons were sent up when the wind seemed even slightly promising. They always veered off to the east or west after a short time.

On August 3rd, Andrée wrote in his diary,

“Everything is in order and we are only waiting for a suitable wind. But no such wind has come since July 15th. We at least have the satisfaction of knowing we have not neglected any favorable chance, for it was never expected that we should have been ready as early as that. Otherwise everything has gone well and according to our plans. If only nature would contribute its share, the thing would soon be done.”

The next morning, August 4th, he continued, “Last night, however, I had to admit that we may not get off this year. Captain Zachau cannot wait longer than the twentieth because the ship is not covered by insurance after that date. That means we must begin to pack up by the fourteenth and Ekholm is of the opinion that we cannot go up later than that anyway. This has been agreed on today by Zachau, Ekholm, Strindberg and myself.

“Today the weather is most disagreeable. Last night the wind blew hard from the North and now it is snowing. The flag pole on the mountain peak has blown away. Our people cannot work out of doors. It is a day of misery.”

To make matters worse a message arrived with

a Norwegian steamer "Express" from Johannes Bull, one of the trainers of the pigeons in Norway, that none of those released at Danes Island had come back.

Apparently to get mental relief Andrée tested the carrying capacity of his balloon and found that in spite of being wet, it took 59 ballast bags, weighing 1,521 kilograms, or over a ton and a half, to hold it down. "It therefore has enough lifting power" he wrote as final self-justification.

On the other hand, he recorded nothing about the escape of gas, which had begun to worry Dr. Ekholm. For the twenty days from July 27th to August 16th, during which the bag remained filled, this loss averaged 68.3 kilograms per day. Thereby the anticipated thirty days of flight, if the start had been made, would have been reduced about one-half, according to Dr. Gunnar Andersson.

As the weather continued unfavorable, the wind being either from the north or not blowing at all, Andrée's diary entries become more and more laconic. The bitterness in his soul can be read between the lines. There was nothing to do



Andrée's starting point on Danes Island, as it looks today. The dark material in the foreground is iron shavings. Some of the casks are shown which contained the sulphuric acid used by Wellman in his later attempt.

but while away the time making measurements, maps, soundings, and the like. On the twelfth of August, Andrée ended his entry with "It is calm and miserable." What could be worse for a balloonist?

Two days later there was great excitement. The "Fram," which had set sail two years before in a brave attempt to demonstrate Fridtjof Nansen's theory that a ship placed in the polar ice pack near New Siberian Island would be carried northward by the current and inevitably drift across the Pole, appeared alongside the "Virgo" after thirty-five months in the ice.

Andrée himself was particularly affected by the appearance of the "Fram," without its brave leader, for Nansen and Lieutenant Johansen had left their vessel more than a year before after she had drifted to 85 degrees, 57' north, where her course had shifted to the south. No one at that time knew their fate. It was not until later that they had passed 86 degrees 05' north, thus exceeding any northing to date, and were then forced to turn back.

Had Nansen perished in his gallant attempt?

Had the polar sea currents played him false after all? Would the polar wind currents trick Andrée and his balloon also?

But whether or not Nansen had reached the North Pole, Andrée knew by August 14th he would not have his chance that year. On the morning of August 15th the "Fram" left for Norway and later in the day Andrée wrote in his diary the bitter words:

"Today we have ground the shears with which the balloon is to be cut up." That was all.

The next day he sent eight pigeons with the announcement that he had given up the flight that year, ending with "The Nansen Expedition visited us the 14th." He might have saved his ink. The pigeons never arrived.

The 17th of August at 10:00 A. M. the valves were opened and by five that afternoon the balloon was deflated. Like a rag the proud airship sank to the floor. The weather was once more fine and M. Lachambre showed Andrée how to remove varnish with kerosene or with a solution of soda in water.

At 4:20 P. M. on August 20th, the "Virgo" raised its anchor and the proud Odyssey was over.

What Andrée felt but did not confide to his diary was probably expressed by Captain Zachau who had less to lose. "The packing-up is decided for the 17th" he wrote. "This decision has put us all in a better humor, for the last few days have been sad indeed. I admire Andrée. Naturally he feels the disappointment more than any one else, but he takes it most philosophically. Personally, I feel like a whipped dog."

On the 17th the doughty Captain wrote, "When the gas was let out of the bag I was ready to weep. To think that this entire trip which has been so carefully planned in every detail, should fail for lack of wind. Let us hope it will only mean a delay until next year. There is no other man who will do the same as the chief of this expedition. Of that I am sure."

On the 29th the "Virgo" was back in Gothenburg.

1897

IT was a changed Andrée who came back from Spitzbergen on August 29, 1896. If not a broken man, he was certainly a bitterly disappointed one.

At Advent Bay he had seen the "Fram" and at Tromsö he learned that Nansen and Lieutenant Johansen were by then again in Norway from their adventurous Arctic journey, received as national heroes through the length of the land. To be sure, Nansen had not reached the Pole. But he had been further north than any other human being, and the success of his daring drift and his long *homeward* trek across the ice, made him the man of the hour in the eyes of scientists and explorers, and the idol of the populace. Banqueted to the breaking point, orations, degrees, decorations, lecture invitations, literary offers, honors of all sorts were heaped upon him.

"There but for the grace of God go I," Andrée to himself must have said, or at least thought,

something like that. For had the Spitzbergen adventure turned out successfully the adulation would have been for him. And Andrée was no more than human.

Not that there was any personal rivalry between the two men. On the contrary, they were the best of friends, and Andrée had scornfully dismissed the idea that they had intended to race for the North Pole. But the situation was such that no man could refrain from making comparisons, however closely the findings were kept locked in his heart. And all about him, no doubt, was a sharp clatter of critical tongues and scornful fun-making at his expense. For no man, especially one as inherently aloof and lonely as Andrée, could it have been an easily bearable situation.

When the "Virgo" left Gothenburg that spring thousands had crowded the wharf to do honor to the man who was to fly to the North Pole. The enthusiasm of the send-off was delirious. But when the voyagers returned there was a mere handful of stragglers on hand.

"How well I remember the day when the 'Virgo' got back to Gothenburg." wrote Carl J.

Kullenbergh, a local reporter who had witnessed the departure. "About a hundred people who had happened to hear of its arrival collected at Nya Kajen, where on June 7th such an uproar had filled the air.

"Slowly the 'Virgo' glides in. On the bridge stands the tall figure of Andrée, unbent and powerful as ever, the eagle profile strongly marked. But what could be read in the inward-turned glances, I shall never forget. The energy and enthusiasm for the great cause burnt as warm as ever, but deepest of all lay a suffocated pain, surely felt as deeply as any pain can be felt. In spite of the outward gaiety it was evident that this home-coming was one of Andrée's hardest moments."

Andrée himself never complained. Whatever he may have felt outwardly he bore his disappointment with a smile, while his determination to try again never wavered. In this desire to carry on, the Swedish people and the men who first supplied the finances backed him admirably. At Gothenburg a telegram came from Axel Burman, a Stockholm business man, offering 10,000 crowns

toward the expenses for the next attempt, and Baron Dickson, his first contributor, who had also financed Nordenskjöld, rallied to his support.

"Please bear in mind," the Baron informed him, "that those of us who have contributed to the expenses for this year, have a preferred right to subscribe to the next try."

The King and Alfred Nobel took the same attitude and the required 53,000 crowns was soon assured.

The balloon was sent to Paris to be enlarged, as the cloth had turned out to be heavier than anticipated. It was cut across the middle and a new section, about three and a half feet high, was put in, which increased its volume by some 10,000 cubic feet, making the total 170,000 cubic feet. The addition increased the perpendicular diameter to $100\frac{1}{4}$ feet. The horizontal diameter remained $67\frac{1}{2}$ feet.

It was decided to start early the next year and take enough gas to keep the balloon fully inflated for six weeks. The plans were further aided when the Government placed at Andrée's disposal the free use of the Swedish gunboat "Svensksund,"

the very vessel which thirty-four years later brought back the ultimate remains of the expedition.

But then came the disappointments. Dr. Ekholm announced that he did not consider the balloon's carrying capacity sufficient to meet Andrée's pledge of "five fold margin of security." It had leaked too much gas while being inflated. The shortest time for the transit to Alaska, Ekholm estimated at 12 days, so that the balloon ought to have a capacity for staying afloat sixty days, which was manifestly impossible. Andrée thought it safe to figure on twenty-six to twenty-seven days but Dr. Ekholm set eighteen days as the maximum. On this point the two men agreed to disagree, and separated.

Then Alfred Nobel and the other backers offered to pay for a new balloon, an offer which Andrée promptly turned down. The real reasons for this decision are secrets which he carried to his grave. Perhaps he felt already too much indebted to his friends to accept further gifts from them. Possibly some mental quirk dictated a sort of stubborn loyalty to the equipment with which he had started. Or perhaps the cause lay deeper;



The moment of departure.

he may have felt too exhausted, spiritually if not physically, to begin all over again. That is the theory of Professor Gunnar Andersson, a close friend of Andrée.

That Andrée was tired that year, though he resumed his post at the Patent Bureau, is further attested by Professor Carl M. Furst, the distinguished anthropologist of the University of Lund, who had dined with Andrée in 1896 at the home of his friend and supporter, Prof. Gustaf Retzius. The aeronaut then declared confidently that "nerves" was not in his lexicon.

"In the winter of 1897 I was again in Stockholm," writes Prof. Furst, "and then once more encountered my friend at a dinner, this time in the home of Oscar Montelius. But Andrée was unable to create the same jubilant atmosphere. It was hard to recognize the jovial, light-hearted enthusiast of the year before. It seemed as though his previously immovable conviction had received a hard knock.

"On the way home I accompanied Andrée and Judge Montelius, a brother of the professor, and when we arrived at the Gustaf Adolf Square, the judge proposed that we go into the Hotel Ryd-

berg and sit down for a talk. But Andrée vetoed the suggestion saying he had a steady headache. Apparently 'nerves' had then entered his lexicon, though courage and will power were as little lacking as before."

The problem of filling Ekholm's place was not difficult, for as soon as it became known that there was a vacancy, applications poured in. In a few days offers had been received from one Swedish professor, five doctors of philosophy, five army officers, two engineers, one forester, and a sea captain. One man wanted a chance to hang in the rigging, and several women volunteered as cooks.

The candidate chosen was young Fraenkel and as an alternate it was decided to take along Baron Nordenskjöld's son-in-law, Lieutenant G. W. E. Svedenborg.

The person whom Andrée loved most in all the world was his mother. She alone, of all women, had been close to him. In her he found his inspiration and his consolation.

On April 29, 1897, two weeks before the departure from Sweden, Mrs. Andrée died, after an illness of only a few days. In all that bitterly discouraging year this was the crowning blow. If

before that, little had been left of the fire of the Andrée of old, his mother's death all but quenched what remained.

"Now all my personal interest in the expedition has gone," Andrée said to a friend. "To be sure, I am still interested in carrying out my idea; I have the same feeling of responsibility for my companions, but of the personal sense of joy there is not a trace. The only thread which bound me to the wish to live is cut off. No doubt all those who start on enterprises like mine, have somewhere a purely individual interest, a feeling of happiness at the thought of some one in whose arms they wish to rest after a completed task, where without reserve they can offer themselves, the essence of their battle, the noblest of their joy. In my case it was only to my mother that this individual interest was attached and you can therefore sense, perhaps, what I have lost."

Before leaving Stockholm Andrée had received a letter from Nansen which is still preserved in the Royal Library, containing advice about how to keep meteorological records, which Andrée had evidently asked for.

It is interesting to read now, when both these

brave men have gone into the Great Unknown, Nansen's closing words to Andrée. (The letter is dated May 20, 1897.) "My warmest wishes and everything that is good," he wrote, "follow you on your great trip and welcome back again after you have added a new and great step in the advance of our research. I look forward to the future with great confidence and I feel certain that this time, too, you will have the same courage and the same poise ("overlegenhed") to await the favorable moment and not start until you are sure it has come. On your banner I believe are inscribed the golden words of Macbeth, 'I dare do all that becomes a man; who dares do more is none.' It is in drawing this distinction that the true test of character appears. And now farewell! In the time that is coming many a kindly thought will be sent you from a friend who believes himself capable, no matter how fortune turns, of judging a man according to his merits and not his luck."

It is not difficult to read between the lines of Nansen's letter. How kindly and skilfully he conveyed his suggestion that Andrée could well afford to abandon the exploit. He did not say,

"Give it up; the project is absurd; the equipment impracticable," or anything approaching that. But with friendly gentleness he made his meaning quite clear, and in such a way as to give no offense to Andrée's pride.

On May 18, 1897, the second expedition started from Sweden. Compared with the departure of the previous season it was a tame affair. The leader's prestige and news value had waned. Then, too, there was unfortunate competition as regarded public interest, for 1897 was the year of the exposition at Stockholm, commemorating the twenty-fifth anniversary of the coronation of King Oscar II. And the echoes of Nansen's success occupied far more attention than the efforts of a man who had failed once and who now was setting out to try again.

The explorer's own diary does not begin until June 7th when the "Svensksund," on which he was a passenger, met the "Virgo" on the coast of western Spitzbergen.

Andrée writes that the ice conditions the second year were more favorable than the first. Indeed, they had no serious trouble until actually reaching Danes Island, and there the "Svensksund" forced

a passage through the pack which opened the way for the "Virgo" to battle into the harbor, which was accomplished with no damage other than bent propeller blades.

Once arrived at Danes Island, their great anxiety was to discover the condition of the balloon house, which had been built the year before and left to withstand the rigors of the Arctic winter. The building, constructed of light materials, had never been intended for use a second time. What would be left of it? Could it be repaired? Considering this very vital problem, Andrée in his diary said frankly that if the hangar was wrecked the whole project probably would have to be abandoned for another year.

"As we entered the harbor it took longer than I had expected to catch sight of the building," said Andrée. "But finally the upper poles were visible above the hillside and then I could see the two top storeys. What a happy sight that was!"

They found that the entire structure had been twisted askew by winter storms, but even in that there was a measure of consolation; the damage had been done by a southwest gale—and anything

chargeable to a south wind could easily be forgiven!

Investigation convinced them that repairs could be so readily accomplished that they calculated a saving of two weeks over the time required the previous year. As in 1897 they arrived three weeks earlier than in 1896, Andrée estimated that he could be ready for the start at least five weeks sooner than the year before, a satisfactory prospect as the favoring winds were expected in July.

The gas apparatus had also withstood the winter surprisingly well. All hands set to work and by the 13th of June the hangar was in such a state that it could receive the balloon. On June 16th the "Virgo" started back to get a new propeller and by June 22nd the balloon was filled, the drag lines greased, and by July 1st they were ready for the start.

This year the explorers lived on board the "Svensksund" and in Andrée's diary we find this entry:

"Life on board is most agreeable. Our material needs are looked after by our 'mama' in a way that would do honor to a first-class housekeeper, and we lack neither good beer for our regular

meals nor champagne for the more festive occasions."

On June 25th the Norwegian steamer "Express" brought three German tourists, Lerner, Meisenbach and Violet, of whom the first two had been there the year before. They suggested taking Captain Sendenborg as far north as possible to place a supply depot against the aviator's return. Two days later came another Norwegian vessel, "Lofoten," bringing mail and more visitors, this time two Swedes, a naval officer named de Champs, and the same reporter for "Afton-bladet," J. Stadling, who remained to "cover" the take-off.

Of these weeks of preparation Strindberg's letters to his father, and to his brother in America, offer perhaps the best description. He tells how the ramshackle hangar, nestling in the lea of the rocky hillside, was buttressed and strengthened. The floor was covered with thick coarse felt, on which they stretched out the bag. All the seams, outside as well as inside, were varnished. The bag itself was partly inflated by the use of large bellows, and workmen, crawling in through the lower opening, attended to the inside varnishing.



The balloon leaves the hangar.



Under way.

"The interior is a strange sight," wrote Strindberg. "It looks like a low vault of stone masonry. Eight men grope around in the murky light, each with a pot of varnish and a brush. The varnish makes the air very bad, and our eyes pain and water, as when cutting onions."

As to gas leaking, Andrée says not a word in his diary, a significant omission. That was, of course, the spectre which everlastingly threatened the success of the undertaking, and to combat which they all worked incessantly.

Strindberg describes a "new method invented by Axel Stake for detecting the leaks. After pieces of muslin, saturated with a solution of acetate of lead are put on the balloon the smallest leakage can be discovered because the escaping hydrogen causes the muslin to turn black. We discovered several small holes that could be fixed."

Despite their constant tinkering Strindberg himself estimated the daily loss of gas at about 99 pounds of lifting capacity. "But," he adds, "as there is the possibility of throwing out 3750 pounds of ballast we will easily float for more than a month. With a fairly strong wind we will reach the Pole, or a point near it, in from thirty

to sixty hours. After we have reached this most northern point we don't care where the wind carries us. . . . Even if we are obliged to leave the balloon and proceed over the ice, we shouldn't consider ourselves lost. . . . But the best thing would be to come home in the fall."

"Home" for them that fall—and forever after—was on White Island.

On July 8th Andrée made the final entries in his diary:

"Conditions have undergone a considerable change during the last few days. After a month of dry weather we now have mild showers almost every day. The barometer, which previously was very sluggish, now makes quite violent movements and the wind, which hitherto has hardly blown from any direction south of east-west, now sets in from other directions. In the higher air layers, beginning with the height of the nimbus clouds, there appears a considerable movement from a more southerly direction. It is characteristic of these new winds that they are puffy, which doesn't appear to be the case with winds from the north. It is evident, however, that we now

have arrived at a period of change and that we can hope to get off.

“I have proposed to my comrades that until the 15th of July we are to place quite high demands on the wind which we choose as our traveling wind. But after that date we are to be content with less satisfactory currents, if they are only of such a nature that they make possible the start itself. For it seems to me that after so much waiting we are entitled, not to say obliged, to make the start. Without the least difference of opinion all three of my comrades agree with me in this respect and thus we intend to act.”

Being in this state of mind, they were satisfied with the southerly wind which appeared on the morning of July 11th and at half past two that afternoon they started.

“Where Is Andrée?”

DURING the thirty-three years that the fate of the Andrée expedition remained a mystery, genuine echoes came from it seven times. Once an actual message, by pigeon post. And six buoys recovered at various times in far places; only two of them with written word.

Of rumors there was no end. The balloon was seen (or imagined) in all quarters of the northern hemisphere. Fantastic messages were reported from Greenland, Siberia and Canada. “Andrée’s pigeons” cropped up everywhere. The lost explorer seemed destined to join the Wandering Jew and the Flying Dutchman as a perpetual and peripatetic vision.

It was between one and two o’clock in the morning on July 15, four days after Andrée’s departure from Spitzbergen. The “Alken,” a Norwegian sealing and fishing boat, was cruising in the full light of the midnight sun to the north-



The carrier pigeon which brought the first news. Andrée's name is stamped on the wing.

east of Spitzbergen. Anders Jensen, the mate on watch noticed a "queer bird" which roosted in the rigging. It had come from the south, chased by two gulls. He did not like the look of it, that mate. He feared the odd visitor might be some bad omen and decided the safe thing was to tell the captain.

So Ole Hansen, skipper of the "Alken," was hauled out of his berth. In none too good a humor, he paddled up on deck and cast his eye over the situation. He, too, thought it a queer bird. If the notion that it might be a pigeon had entered his mind, doubtless he dismissed it immediately, for this particular bird, a Belgian pigeon, did not look like any pigeon likely to be seen in Norway. To him, perhaps, it seemed like a ptarmigan, and therefore good to eat.

So Skipper Hansen went below and got his shot gun. Unfortunately the dead bird went overboard instead of falling down upon the deck, as expected. As it was small and of uncertain origin anyway, the captain, doubtless by this time thoroughly disgruntled with the interruption to his rest, decided it was not worth while to put a boat over. So the dead pigeon swashed in the water

where it fell; the captain went to sleep again, and the "Alken" cruised leisurely on its way.

Later in the day, meeting another fishing vessel, Captain Hansen told about this odd bird he had shot. The man to whom he talked surmised that this might be one of Andrée's pigeons, and told Hansen of the balloon voyage and the reward that had been posted for locating any of its winged messengers.

So Hansen turned about and, quite miraculously, actually recovered the floating pigeon. Its exact location was latitude 80,44', longitude 20,20'.

The message Skipper Hansen found under the tail of this bird, which is still preserved in the Northern Museum at Stockholm, read as follows: "From Andrée's Polar Expedition to 'Aftonbladet' (an evening newspaper), Stockholm—July 13, 12:30 M. Lat. 82.2' Long. 15.5'. Good speed eastward 10° south. All well on board. This is the third pigeon post. (signed) Andrée."

Thus, by the barest outside chance, was found the first direct word from the balloon party which had vanished over the northern horizon. Those

first two "pigeon posts" were never recovered, nor any other bird released from the "Örnen."

When Hansen realized that this "strange bird" was a carrier pigeon, he searched it and at once found the tube and the message above quoted. Now Andrée's announced plan was to send two messages in each tube, one written in clear language for immediate transmission to Stockholm by telegraph from the nearest point available, and the other written in shorthand by Strindberg, to be forwarded by mail. Each tube had instructions to that effect, printed in Norwegian on the outside, as it was surmised that residents in Norway would be most likely to find them.

Hansen says that although he read the notice that two letters would be inside the tube, actually he found only the one brief message. Strindberg's shorthand communication apparently was not included.

When the Norwegian Captain got back to Tromsö he delivered both the dead bird and the message to the Swedish Consul, Robertson, who forwarded them to Stockholm. Hansen later received a fine spy glass from the Swedish Govern-

ment, but apparently the expected financial reward never materialized, to his lasting disgruntlement.

Andrée's chief hope of establishing communication with the world he had left lay in the homing pigeons taken with him. And after the painstaking experiments he had conducted with the birds during the previous years he must have realized how pitifully little might be expected from them.

In those days homing pigeons offered the only possible method of meeting a communication problem such as Andrée's. Futile as it seemed there was nothing else. What a contrast to May 9, 1926, when radio, flashing back from Kings Bay, Spitzbergen, only a few miles from Andrée's starting point, reported that Richard Evelyn Byrd had flown to the North Pole and back. Or the even more miraculous modern phenomenon when American newspapers on May 11, 1926, printed the first dispatch actually date-lined "North Pole," when they received from the "Norge" a message put on the ether as the dirigible of the Amundsen-Ellsworth expedition poised over the very top of the world.

It was not until the fall of 1895 that it was

decided to use pigeons on the Polar flight. Up to that time they had never been tested in the Arctic and the principal experience influencing Andrée's decision was a test, conducted by a Paris daily, "Le Petit Journal" in the summer of 1895. Five hundred pigeons had been released from a steamer at sea 503 kilometers from their home at Cap Croisic at the mouth of the Loire, near St. Nazaire. Though the nearest point of land in any direction was nearly 250 miles away, one fourth of them came back. To be sure, the distances they would have to fly returning from the Polar regions would be greater than 250 miles, but on the other hand, while the French birds had crossed over water the entire way, the sea in the North would be at least partly covered with ice on which they could rest, and at various points nearer the Norwegian coast there would be spots of bare land on which they might be able to find food. At any rate, Andrée thought it worth while to try them.

The thirty-six birds he planned to take, with their equipment and food, weighed probably less than 50 pounds. Aeronauts of later days have found a problem identical with Andrée's. In the air every pound of equipment counts—each ounce

is weighed against gallons of gasoline or cubic content of lifting hydrogen instead of pigeons. Later explorers of the air have carried radio equipment, proportionately heavier but relatively more efficient.

The Polar pigeons were carried in a special wicker basket with a small cage at the top to hold the bird while the message was being inserted in a small wax-sealed tube. How many pigeons actually were sent with messages is not known. Whether, at the end, when the bag was abandoned, the remaining pigeons were released is a mystery like so much else. If so, no one knows what messages may have been sent with them—messages which yet some day may miraculously be found. Perhaps, in the final wreck, the cages crashed open and the bewildered birds made off. Or all of them may have perished, an imprisoned crew, sinking with its ship.

All the pigeons taken north were equipped in advance with tubes attached to the middle tail feather so that it was only necessary to insert the rolled messages into the holder and seal the latter with wax.

Originally the Swedish newspaper "Aftonbla-

det" had bought for Andrée's use 104 Belgian carrier pigeons, which arrived in Stockholm late in 1895. They were of the Antwerp breed, regarded as particularly capable in navigating marshes and open water. Their chief characteristics were long bills, flat heads, and long beautifully arched necks.

Early the next year seventy of these birds were sent to Fruholmen in northern Norway, where the keeper of the lighthouse, Captain Hornemann, had agreed to train them. This lighthouse is the most northern in the world, being only a few miles south of the North Cape. The rest were turned over to the storekeeper Bull on the Island of Söro.

The birds seemed to thrive in their new environment and soon began to lay eggs and breed. During the winter season while it was dark it was impossible to train them. But when the sun returned they were carried in large cages to neighboring mountain peaks to get accustomed to their surroundings. Then the tamest were released, first at short distances and then further from home. In some instances pigeons were released from sailing boats at sea. Of these two disappeared, ap-

parently flying south, and two became victims of hawks. All the others returned to their light-house home.

When Andrée left for Spitzbergen in 1896 he took with him eighty-three of these birds, fresh from their training in northern Norway. During the trip from Tromsö three pigeons were released. One of them, evidently a landlubber, alighted on a wave, perhaps deceived by the example of sea birds. The others made a swing to the south but soon returned to the ship. After a period of meditation they took to wing once more and headed for Norway, but there is no record of what became of them.

After arrival in Spitzbergen the pigeons were housed in the attic of the Pike cottage adjacent to the hangar. That summer recurrent experiments were made with the birds; most of them discouraging.

Typical was the experience of July 24th. At five o'clock in the evening fifteen birds were released. One refused to fly. Fourteen headed south. Of the lot, one was later caught on a tourist steamer in Virgo Harbor. Of those released that day, and of the others sent out in the summer of

1896, only one was later recovered. It was found on August 20th at Bjerkvik in the Ofoten Islands, off the northern coast of Norway. But it had been a stowaway on a tourist steamer at least part of the way.

But of the best pigeons brought north, thirty-six were chosen to go with the balloon and for their keep light wicker baskets were made, divided into two storeys, with space for three pigeons in each compartment. Water troughs of aluminium, with edges turned in to keep the water from splashing over, as well as small feeding troughs of wicker work, were installed in each compartment. The floors were covered with paper mats. The nourishment for the pigeons was estimated at two liters of water for each day and three liters of peas mixed with other seeds.

On the return from Spitzbergen in 1896 there were about fifty pigeons left on board the "Virgo" and in Tromsö, they were left for care and further training during the winter. The next spring the expedition apparently had only enough birds to fill the cases and none appears to have been sent out on trial, either on the way to Spitzbergen or after the arrival there. In his diary for the sec-

ond year Andrée makes no mention of pigeons and seems to have lost either his interest or faith in them. The pigeon that was caught and which brought the last message from the balloon was one of the young ones born in Norway the year before.

In addition to the pigeons Andrée took with him twelve specially made buoys which he intended to drop at regular intervals on the way north; and a larger one, called the "Polar Buoy" at the North Pole itself.

These buoys were pear-shaped and made of layers of cork, held together partly by a net of copper wire and partly by a tube through the core, in which a message was to be inserted. At the bottom the buoys were ballasted with a tip of copper and at the top was a little rod, wound with wires and carrying a small Swedish flag. Each buoy was numbered, but they were not dropped overboard in the order intended, probably because it was more convenient to use the one nearest at hand.

The first buoy found was No. 7. It was picked up May 14, 1899, on the north coast of Iceland and had a message inside. It was apparently the

second one thrown out and the message scribbled on the back of a folded map of the Polar regions in the hand of Strindberg, read as follows:

“Buoy No. 7

This floating buoy is thrown overboard from Andrée's balloon at 10:55 P.M. G.M.T. (Greenwich Meridian Time) the 11th of July, 1897, at about Lat. 82 Long. 25° E.G. (East of Greenwich).

We float at about 600 meters height.

All well (In English)

Andrée Strindberg Fraenkel”

In place of the word “well” had originally been written the word “right,” but was heavily over-written with a pencil. Evidently the message had been written in a hurry or under stress, for only a small part of the space available had been utilized. On the map the route of the balloon was indicated with a line and the word “course.”

Of those so far recovered, this was the second buoy thrown out. The one dropped before that was buoy No. 4, which was found on the coast of northern Norway, or in Finnmarken, on Au-

gust 27, 1900, or over a year later. It, too, contained a message but in the hand of Andrée and on a sheet torn from a note book.

“July 11 10:00 P.M. G.M.T.

Floating Buoy No. 4. The first one thrown. Our trip has so far gone well. The sailing continues at an approximate height of 250 meters with a direction at first toward N. 10° east, true, but later N. 45° east, true. Four carrier pigeons were sent at 5:40 P.M. Greenw. time. They flew westerly. We are now arrived over the ice, which is much broken in all directions. Weather splendid. Spirits excellent.

Andrée Strindberg Fraenkel
Above the clouds since 7:45 G.M.T.”

It will be noticed that this message does not give the exact location of the balloon and it is possible that the second one, dropped only fifty-five minutes later with exact indications may have been prepared to remedy the omission.

In between these two buoys with messages, three others were found empty. The Polar Buoy itself was recovered at King Charles Land on September 11, 1899, or two years after the flight, by a Norwegian harpooner, P. C. Olsen, on the

north side of the island. It had no message, and was pretty well broken up.

In the summer of 1900 two buoys were found on the south side of Iceland. No. 3 was found in the water, still afloat, and in excellent condition, while No. 8, drifted up on the shore, barely hung together.

As late as 1912 a sixth buoy was picked out of the water and others may yet appear. It is remarkable that no remnant of the balloon itself or of any of the equipment, much of which was floatable, has yet appeared.

Hardly had Andrée and his men left for the Pole before reports began to arrive of their appearance in widely scattered areas of the northern hemisphere. In some places they were supposed to have been seen even before they started and seldom has any event caused such a flood of rumors. Hysterical women and crack-brained second-sighters vied with romancing sailors and practical jokers in producing "evidence" as to the fate of the lost explorer.

All over the world publicity seekers invented solutions to the mystery in order to get their own

names in print. Andrée's fantastic adventure had so aroused international imagination it was little wonder that imaginary visions of the balloon appeared. Poets wrote verse in his honor, playwrights constructed dramas and novelists spun romances about him and his fate. He was supposed to have been seen in Siberia, in Alaska, in Greenland, and his pigeons were reported picked up as far south as the Adriatic, and, as late as a year afterwards, in the Polar regions.

To all these reports the press of the world lent a ready ear. Innumerable were the "extras" sold in the streets of every large city emblazoning the latest "facts" about the fate of the explorers. It is probably no exaggeration, writes Prof. Gunnar Anderson, that several expeditions as costly as that of Andrée could have been equipped with the money spent for cable and telegraph tolls on all these false rumors. Every poor pigeon that strayed to a strange place risked being shot as a possible carrier of polar news, and many an unscrupulous wretch sought to make an honest penny by offering faked messages to Stockholm.

The only authentic reports were those about the buoys. The supposed sighting of a balloon and

hearing cries for help were difficult to check, and the forging of pigeon-post bulletins was comparatively easy. On the other hand, the structure and even the existence of the blue and yellow buoys was less widely known, and their possible landing places more restricted.

As early as July 23rd, or less than two weeks after the start, the newspapers all over the world printed a telegram from Rotterdam to the effect that the Dutch steamer "Dordrecht" on its way home from the White Sea had seen remnants of Andrée's balloon drifting on the water. At once the Swedish government made inquiries. The "balloon" turned out to be a dead whale.

A few days later the Danish daily "Social Demokraten" received a letter from Onega in northern Russia, signed Oskar Mortensen, and alleging that on July 13th at nine A.M. the bark "Ansgar" from Dublin to Onega had seen a balloon two days east of North Cape at close range. A few days later came the genuine message with the pigeon, showing that at the hour reported the balloon actually was still afloat in the North and that so far all was well. That ended the Onega man's bid for fame.

Next came a telegram from Stavanger relating that from a steamer off the coast of Norway a balloon had been seen over the mountain tops, "carrying drag lines." Hence it must have been Andrée's. Columns of expert opinion and inexpert surmises were printed. Until finally Andrée's old teacher, Captain Francesco Cetti, announced his conclusion that it had been a paper balloon with a tail.

From all over Sweden and the other Scandinavian countries came reports of farmers' wives who had seen objects in the sky that looked like balloons. No matter how preposterous the circumstances, or vague the details, there was always a local paper ready to print the stuff, which in due course was copied all over the country.

Then came the seal and whale hunters from the North. They had heard cries for help at such-and-such a point and on such-and-such a night. It might have been the Swedish aviators, who had been wrecked. Or it might have been loons, or gulls, or just imagination, or an overdose of "schnaps" from the ship's liquor stores.

The best authenticated story came to Vardöe from the coast of Spitzbergen, where Skipper



The remnants of Andrée's last camp on White Island.

Copyright by The Associated Press

Johan Overli on "Svanen" said he had heard cries for help on the night of September 22, 1897. Another skipper Olaus Olsen reported he had seen an object which might have been the wreck of a balloon off Prince Charles Forland, Spitzbergen. The two reports together caused the Norwegian Government to send out an expedition, which left Tromsø November 5th but returned without finding any support for the sailors' yarns.

Next came rumors from Greenland, via Philadelphia. On September 25, 1897, there were extras in Stockholm, relating that the bark "Salmia" loaded with cryolite, had arrived in Philadelphia from Ivigtut on Greenland's west coast and that its crew related that the natives had seen a balloon "sailing north." The next year came stories of mysterious rifle reports from the east coast of Greenland that had been heard in October or early in November 1897.

Northern Siberia made the next contribution, that a "glowing" balloon had been sighted on September 20, 1897, and the details were sensible enough to cause the Swedish Government to send an official to investigate. After months of work and many exchanges of official telegrams be-

tween Sweden and Russia, it was established that the report was based on a practical joke.

Next the other side of the globe was heard from in the form of rumors from British Columbia. On August 11, 1897, the Canadian Government received a telegram from Victoria saying that its agent, named Louis, had received "reliable" information from two different Indians that Andrée's balloon had been seen near the border between British Columbia and Alaska. The Swedish-Norwegian Consul at Victoria was asked to investigate and he learned that the balloon had been observed on July 1st—eleven days before Andrée left Spitzbergen!

The following spring British Columbia again offered a solution in the form of a telegram stating that a former U. S. mail carrier had arrived from Dawson City in Alaska with news that Andrée was in the Klondyke. And to prove it, the informer had a letter from Andrée himself, but when pressed by the Swedish-Norwegian Consul at San Francisco, he refused to give it up.

In the fall of 1897 another rumor emanated from Quesnelle in the same province to the effect that the first week in August a Mrs. Sullivan

and her daughter had seen a mysterious balloon; and from the opposite side of northern Canada, at Fort Churchill, came stories about Eskimos who had seen *four* white men and that they had killed two, while the other escaped. This theme of Eskimos killing and even eating white men who had descended from the sky was later repeated in various forms and from different places until it became a sort of stock myth of the North.

Another type of rumor was represented by a telegram sent August 2, 1897, from Germania in Iowa to Baron Oscar Dickson in Gothenburg who had helped finance the expedition. It read:

"Andrée moving south westward near longitudinally west toward Edam Land. (signed) Ole Bracke."

Again there were extras and inquiries and surmises. Edam Land was located in North Eastern Greenland on Lat. 77 but no one knew who Ole Bracke was or how he came by his information.

Baron Dickson had died before Andrée started the second time, so a local paper, "Handelstidningen" was given the chance to follow up the "lead." Bracke replied to telegrams that he was sure Andrée was alive and needed help, but subse-

quent investigation in America disclosed that Bracke was an odd character, living alone in a shack four miles south of Germania, Iowa. He had written a poem about Andrée which had been published in a Minneapolis newspaper. After that he had had visions of Andrée three different times, and hence the telegrams to Sweden.

Other messages came from occult sources. Thus a Dutch engineer, who claimed to be President of a Spiritualist Society offered full information about Andrée if only a reputable Swedish scholar would come and call for it. There were also numerous reports of carrier pigeons from various places, but no real news.

The most likely sources of information were felt to be Northern Siberia and Eastern Greenland and both these regions were visited by Swedish search parties in 1898. The Siberia regions were searched by a party, consisting of 'J. Stadling, the reporter for "Aftonbladet," who had seen Andrée start, Hans Fraenkel, a brother of Knut, and a scientist named N. Herm. Nilsson-Ehle. This trio traveled thousands of miles through Northern Siberia to interview the natives, but found no news. During the summer of 1898 all

expeditions to the North searched the entire Polar region for traces, but found none. One Swedish party even went ashore on White Island, not far from the last Andrée camp, but on account of the heavy snow saw nothing. The following year, 1899, a Swedish expedition led by A. G. Nathorst, investigated eastern Greenland.

In 1908 it was reported that a grave had been found on the coast of Labrador with a cross over it bearing Andrée's name. Sifted through, the facts showed that it was the grave of Andre Austey, a seaman, which had been found.

Bishop Pascal of Prince Albert, Saskatchewan, relayed to the world in 1910 a report that Father Turquotelle, an itinerant missionary, had reported that Andrée had landed in Alaska and been murdered by Eskimos. The story had come out when he had questioned an Eskimo about a gun he was carrying. A "great white house" had come down out of the sky many years before, it seemed, near Reindeer Lake in the Arctic Circle. In it were three men. As they descended one of them had fired a shot, which had terrified the Eskimos still further, and they had fallen upon the three of them and killed them. They were still using the

rope from the net found over the "house" and the cloth of which it was made in mending holes in their tents.

The sum total of all investigation was deepened mystery. Andrée was gone. The book was closed. Yet each time man essayed a new Polar campaign, recurrent speculation about the lost explorer naturally arose.

In those thirty years that followed 1897, of Polar exploration, and Arctic conquest, there were plenty. A summary of the expeditions of that period should find a place here, for each evoked recurrent curiosity concerning that pioneer balloon exploration.

1906—Walter Wellman, American journalist, built a dirigible airship for voyage to the Pole. Headquartered at Spitzbergen.

1907—Unsuccessful attempt to fly Wellman balloon. Could not get away from the island.

1909—Peary reaches the North Pole.

1909—Wellman expedition reached point in pack ice sixty miles north of Spitzbergen.

1910—Official German commission made a trip to Spitzbergen to see whether it would be feasible to use a Zeppelin in exploring the Arctic. The findings were favorable, but no practical results followed.

- 1914—First actual flights in the Arctic. Rescue of Sedov party. A Russian, Lieutenant Nagurski, was sent to Cross Bay, Nova Zembla with a Farman hydroplane. Made a number of flights.
- 1922-23—Amundsen and pilot Ohmdal. Took two planes, a Junkers and a small Curtiss reconnoitering ship. The Curtiss crashed after two short flights; the Junkers on a trial flight made May 23d.
- 1924—(Three) Oxford University Arctic expedition led by George Binney to Spitzbergen with two planes for photographic mapping. Several areas photographed from the air.
- 1925—Amundsen-Ellsworth. Two Dornier Wal seaplanes. Six men. 87 degrees, 43' North 10 degrees 21' West.
- 1925—Byrd flights in Loening amphibian from Etah. One as far as Eureka Sound, over Greenland ice cap north over Inglefield Gulf.
- 1926—Byrd-Bennet to Pole from King's Bay, Spitzbergen, May 9th. First to attain Pole by airplane. Flew 850 miles in 8 hours and then back to starting point.
- 1926—Amundsen-Ellsworth-Nobile with Italian plane "Norge" over Pole, May 11, May 12. Landed at Teller instead of Nome on account of storms.

- 1926-27—Wilkins flights to explore northwest of Point Barrow.
- 1928—Wilkins, flight, Point Barrow to Spitzbergen, in 20 hours.
- 1928—Nobile's exploration in the dirigible "Italia." Disaster. Subsequent death of Amundsen while endeavoring rescue by plane.

Thirty-three Years Later

THE harpooners Olaf Salén and Carl Tusvik, were thirsty. So they left their work of skinning walrus on the White Island beach and trudged to the head of the bay, where a little stream of water, freshly melted from the snow banks beyond, came trickling down through the rocks.

As they stooped for their drink, they were surprised to notice a rusty tin can—surprised because in the Arctic wastes of that desolate island there was no human habitation and no record of other white men having been there for years. That can was a souvenir of civilization. Yet civilization lay far below the rim of the southern horizon. Salén kicked the can with his foot. And then taking it up, examined it.

“Who died here?” That, often enough, is the question that follows such discoveries in the North. Perhaps at once it flashed through the minds of the two hunters. Certainly their curi-

osity was aroused. Forgetting their thirst they looked around, and a darkish mound protruding from a nearby snowbank caught their attention.

Hurrying over they found that it was the end of a boat, with a boathook sticking out of it. Painted on the prow were the words "Andrée's Polar Expedition 1897."

Andrée!

They had stumbled upon the answer to the Arctic's outstanding riddle, unsolved for thirty-three years.

Andrée had been at White Island.

The summer of 1930 was unusually warm. Nebraska and London and Moscow sweltered. Even regions north of the 80th parallel of latitude were affected. Ice and snow melted down to unprecedented levels. Temperatures of from 10 to 15 degrees centigrade were recorded at Franz Joseph Land—a record almost tropical for those regions. The northern edge of the polar pack, which reaches around from East Greenland well to the north of Iceland and Spitzbergen, receded further towards the Pole than ever before in the

memory of the Norwegian hunters. Open leads of water wound darkly through the ice pack, where normally it lay solid and unbroken.

A great season, that warm summer, for the hunters and for explorers. Their vessels could go with comparative ease and safety where usually every inch was a battle with the ice, or where surface progress was impossible.

The little Norwegian fishing vessel the "Bratvaag," cruising northward this unusual season, found itself close to the group of Great Island, White Island and Victoria Island, which lie between Fridtjof Nansen Land and Spitzbergen. These rocky islets are almost entirely unexplored, because the ice fields around them are usually so impenetrable. As the "Bratvaag" cruised northward, a hunting boat they hailed told them that the ice this year had cleared away from around the shores of the islands to an unprecedented degree. And so they found it, without difficulty sailing in open water up to Great Island on August 5th.

There they landed on the southeast side and made their way over to the opposite shore, where they found a pole marking the location of a depot

established in 1928 by the Italians for Amundsen and Nobile. Here they erected a hut they brought with them and left it behind as a refuge for any ill-fated mariners who might chance that way.

The "Bratvaag" had set sail from Aalesund, Norway, early in July, 1930. She was a medium-sized steamer, whose job was to hunt whales, seals and walrus. This year, in addition to her crew of professional hunters, she carried the personnel of Dr. Gunnar Horn's scientific expedition, sent out by the Spitzbergen Bureau of Norway. Beside Dr. Horn, a geologist, there were Olaf Hanssen, botanist, and Adolph Sorensen, zoologist. The vessel had a radio receiving set but no equipment for sending out messages.

From Great Island, Dr. Horn's party at five o'clock on the evening of August 5th sailed eastward, still through ice-free waters. Soon they arrived at White Island, which lies next to the east. There observations demonstrated that its location, like that of Great Island, was incorrectly set down on the charts.

During the earlier part of the sunlight night the scientists busied themselves collecting specimens and making observations. Returning to the

"Bratvaag" they reported having seen a fine herd of walrus close in shore, and so early on the morning of August 6th, with the veterans Sigurd Myklebust and Severein Skjelten, in charge, and Carl Tusvik, Olaf Salén and John Almestad, the ship's two boats set out on the hunt.

The walrus they found basking lazily in the sun, for the most part asleep, lying huddled together in groups on the larger flat-surfaced pans of ice. In water a bull walrus is dangerous game, especially for Eskimos in their frail kayaks, dependent for the kill entirely upon primitive harpoons and lances. But ashore walrus seem peculiarly slow-witted and comparatively helpless despite their enormous strength and weight, their ferocity and the effectiveness of the bulls' tusks at close quarters. It seems probable that their hearing is deficient. At all events, it is no trick at all to paddle up within a few feet of a herd of the sleeping animals without disturbing them. There they lie, a guardian old bull periodically lifting his head with the great tusks, tiny bloodshot eyes, and comic whiskers, and looking around perfunctorily and, if the hunter just then remains quite still, probably seeing nothing. They

smell like a barnyard, these walrus, an effect heightened by the constant mooing of the cows and grunting of the bulls, all sounding very much like cattle.

Hunting was good that morning. Soon a dozen carcasses were heaped up on the beach, and the hunters were elbow deep in the skinning. And then, after an hour of it, because Salén and Tusvik became thirsty and laid aside their knives, the last camping place of Salomon August Andrée was discovered.

The two men returned hastily to the party on the beach and together they all went back and investigated further the half buried boat. Among the other articles which they found at once was a book. This they were carrying back to the beach just as Captain Peder Eliassen and one of his men arrived in the motor boat to lend a hand with the walrus.

They led Eliassen to what they had found at the head of the bay, and there, all searching together, unearthed other relics of the long-lost Swedish party. A human skeleton clothed in fur with the letter "A" monogrammed on the jacket must be that of Andrée himself.

Captain Eliassen immediately returned to the "Bratvaag" to ask Dr. Horn and the other scientists to come ashore and take charge of the search. Assisted by members of the crew, they worked for seven and a half hours, digging in the snow and ice and collecting and transporting back to the ship the relics encountered. The work was carried on in feverish haste because they feared that the prevailing fine weather would change. A shifting wind might close the ice in again around the shore, or a storm drive their vessel away seeking safety.

Dr. Horn and his men built a cairn surmounted by a pole just behind the camp permanently marking its location. In it they placed a bottle containing this note:

"It is here that the Norwegian Franz Josef Land Expedition found the remains of the Swedish Andrée Expedition."

Although of course Dr. Horn realized that the discovery would be of world-wide interest, he had no means of sending out word. Two days later his party sighted the "Terningen" and hailed her. Gunnar Horn gave her Captain, Gustav Jensen, letters telling what they had found on White

Island, because the "Terningen" would make port at Tromsö considerably before the "Bratvaag" was due at Aalesund.

Later it developed that actually the tell-tale tin can had been observed by previous visitors only a month before the Gunnar Horn party arrived. On July 8th Captain Teodor Grödahl had gone ashore from his hunting ship, the "Hanseat," to look for foxes and possible remains of the Nobile expedition, for the Italian party had drifted off in this direction in 1928.

"We methodically went over the open area at the head of the little bay below the glacier," Grödahl subsequently reported. "I noticed a can, part of a tent pole, and a small log which might have been drift wood. As it was about 300 feet inshore, it evidently had been dragged up from the tide line, possibly for use as fuel. But as these articles were evidently so old that they could not possibly have been connected with Nobile, I thought no further about them. Never once did the idea of Andrée enter my mind. So as a matter of fact I had been floundering around in the snow at exactly the place where the Andrée relics were later discovered. . . ."

On August 22nd, sixteen days after Salén and Tusvik had chanced upon the Andrée camp the "Terningen" reached Tromsö, Norway, and a journalistic bomb-shell broke. Andrée, as headline material, had been dead for years. On the morning of August 23rd the name came to life again. Probably every daily newspaper in the world carried a front page story about the miraculous solution of the thirty-three year old Arctic mystery. Captain Jensen's meagre account, flashed over the wires and through the air, blossomed into countless columns of dramatic description.

It was back in 1926 when Andrée's name had last figured at all prominently in the news. Then it was in reference to Amundsen's exploit of that summer, when journalists paused to compare in retrospect the multi-motored "Norge" with the equipment of the pioneer polar explorer of 1897.

While the world watched for the return of the "Bratvaag" to Tromsö with Dr. Horn's own story, and whatever he might have of Andrée's records, everything that remotely related to the flight itself became news. Each and every one of those who had known and worked with the bal-

loonist was interviewed and had something to contribute to the preliminary material.

There was Lieutenant-Colonel Svedenborg who had been alternate for the balloon expedition. Surviving, too, was Professor Gunnar Anderson who himself had conducted a search expedition for Andrée back in 1898. Sought out for a "human interest" story was the old fisherman who lived on the barren island of the Baltic on which Andrée was stranded for sixteen hours after a flight in 1893 in his first balloon, the "Svea."

In Germany an old man remembered Andrée when he was a janitor at the Swedish Exhibit at the Centennial in Philadelphia. Oluf Olseh, ninety-year-old sailor at Tromsö, proudly recalled having sailed with the explorer on his first Arctic trip in 1882. Colonel Arthur Lynch of London was among the friends present when the "Ornen" sailed; to the aftermath he added that Andrée himself realized fully when he started how slight was his chance of success. He kept on, thought Colonel Lynch, to show his courage and to combat any allegation that he was simply a notoriety seeker.

There were relatives of the three polar flyers too, some of whom hastened to Tromsø. Tore Strindberg, now a sculptor, waited there, influenced by no material interest but to do honor to his brother's remains. In Nils Strindberg's pocket when he left on the flight there was a sealed letter from Tore, then a young boy, marked "Not to be opened until September 4th." It was a birthday letter, and when it was found in Nils' pocket on White Island the seal had been broken.

And there was Anna Charlier, fiancée of Strindberg, whom for a long time the newspapers could not locate. But finally it was ascertained that in 1923 she had married a school teacher and now, as Mrs. Anna Hawtree, lives in Concord, New Hampshire. Outside of these interviews with contemporaries, opinions of experts, and reports of relatives, the reading world was treated to a complete rehashing of the facts of the flight of 1897 and what preceded it.

But all the excitement ashore meant little to the "Bratvaag." She had been sent out to make a catch of seal and walrus and polar bear and whatever else would go to make up revenue for her owner, Harold M. Leithe, and wages for her

crew. The fee of 7000 crowns paid by the scientific party was not an outright charter, but simply a charge for carrying the laymen. And so, ignorant of the suspense her absence caused, she kept at her work unconcernedly. She was due in Norway the tenth of September, and not until then was there warrant for her arrival.

Not content with waiting ashore for the return of the "Bratvaag" at least one Norwegian paper, the "Aftenposten" of Oslo and two Stockholm papers, "Dagens Nyheter" and "Stockholm's Tidningen," chartered other sealers at Tromsö to try to meet the "Bratvaag" somewhere in the Arctic Ocean, not an easy rendezvous. The ship chosen by the Dagens Nyheter's man, Knut Stubbendorf who had been in the same region to cover the Nobile rescue story, was the "Isbjörn," which had competed with the "Bratvaag" for the engagement to take the Horn party North. One of these boats carried not only reporters and photographers, but also airplanes to bring them back as soon as they had obtained the story. How Andrée would have enjoyed all this frenzied pother had he been able to read the future!

The "Aftenposten" boat had this advantage

that its backers made an agreement with the Norwegian Spitzbergen Bureau that it should have the exclusive rights to Dr. Horn's story, at least, and to the contents of the Andrée diary, if possible. But in order to safeguard the rights of the Andrée and Strindberg relatives, the Swedish and Norwegian governments later sent orders to keep the diary secret until the question of its ownership had been settled.

Then the owner of the "Bratvaag" was promised compensation for the possible loss of revenue, due to shortening its stay on the hunting grounds, and from the wireless and broadcasting stations of Sweden and Norway were sent twice a day instructions to Skipper Eliassen to come home as soon as possible. Meanwhile the "Bratvaag" had continued its course to Fridtjof Nansen Land as planned. By the 26th of August she was back at White Island and those on board could see that during the twenty days of their absence the ice and snow had melted further, but because of bad weather they could not go ashore again.

The next day the wireless receiving set picked up the orders sent out from Sweden for immediate return, and so they set off to the nearest tele-

graph station at Hasvik near the North Cape, where the Andrée pigeons had been trained. Believing that the "Bratvaag" would proceed to the nearest telegraph, the Aftonposten boat, the "Heimen" set out to find it. And at Skjaer Island the two boats met and lay to while Dr. Horn wrote his story. A first-class journalistic "scoop" this, for in the meantime rival newspaper boats were scouring the seas in vain. The financial proceeds of Dr. Horn's account paid for the "Bratvaag's" time and rewarded the crew, with 10,000 crowns left over which went to Sweden for an Andrée fund.

In the meantime Captain Jensen was the news lion of Tromsö. He had talked with the men who found Andrée. He had been on the deck of the "Bratvaag" where were stowed the relics of the expedition.

An amusing interlude to the mounting tempo of the journalistic performance was the circulation of a report that Captain Jensen's story was a hoax. It was, the rumour had it, the same sort of fiction that so often before had cropped up about Andrée, as when his "body" had been discovered in Siberia. Indignant denial of this was

promptly forthcoming and Jensen's integrity thoroughly upheld, though the doubtful mariner ultimately was put to producing his ship's log in which, he heatedly pointed out, romancing would not possibly be set down.

It all came to pass when Jensen, unfamiliar with the ways of reporters, prodded with questions, became angry and refused to be grilled further. The reporter observed "Perhaps there is nothing to your story after all." The ship's captain glared in fury and stalked away. And thus was the rumour born.

In the meantime official commissions of scientists were appointed to look after the finds. Methods of preserving the precious diary must be worked out. Conflicting claims between the country whose men found the Andrée camp, and the country to which he belonged, must be adjusted. And they were, without any difficulty; Sweden and Norway had separated since Andrée went away, and if on various occasions before that their relations had been somewhat strained, this time there were no arguments, but complete harmony.

Plans were made to do honor to Andrée and his

men when the "Bratvaag" arrived. Gothenburg, the city from which the expedition sailed both in 1896, when it turned back, and in 1897 when it did not, felt that it had a priority claim; a street was named in his honor. There was Stockholm, where he had resided and worked so long, and then there was Grenna, his birth-place. Tromsö, too, the last port before departing for the Arctic, demanded recognition.

"Until we return, we will not have deserved this," Andrée had said when he left Stockholm in 1896. And no detail was to be overlooked in doing them proper honor when they returned, dead, having tried and failed to accomplish the impossible.

On September first, the "Bratvaag" sailed into Tromsö harbor with her flag at half mast. Silent, sincere homage was paid by the townsfolk to the dead explorer and his two companions. The zinc-lined oak chests were carried aboard and later Norwegian and Swedish sailors bore them to a hospital, where the other relics were also taken. One set of bones were those of a bear, it seemed. The others were identified as belonging to Andrée and Strindberg. The caskets, draped in black,

were set up in solemn state in Tromsö Cathedral.

More diaries and notebooks had been found in the clothes. All the relics were carefully catalogued—more than two hundred pieces of equipment altogether—and packed for shipment to Stockholm.

One of the three vessels sent out by newspapers to intercept the "Bratvaag" was the motor ship "Isbjörn." Having failed to connect with Dr. Horn's vessel it proceeded directly to White Island, where it had admirable good luck in weather and was able to stand by for three days from September fifth to seventh inclusive, while the newspaper correspondent in charge, Knut Stubbendorf and members of the crew, collected more remains which had been released by the further melting of the snow and ice.

Among the finds were parts of skeletons that apparently belonged to Fraenkel (who first had been believed lost prior to the party's arrival at White Island) and some further bones identified as those of Andrée. From the marginal notes made by Strindberg in an almanac, the reporter was able to piece together the skeleton account of what had happened on the balloon's flight, sub-

sequent to the release of the pigeon message which was written on July 13th, two days after the start. He also obtained inklings of what occurred after the descent and sent the story to Tromsö by wireless, whence it was telephoned to Stockholm.

An extraordinary assortment of articles was recovered from that last camp by the Isbjörn party. The uselessness of some of the items is a tragic testimonial of the apparent impracticality of the undertaking. Certainly there was enough and to spare of utterly unproductive dead weight.

Perhaps most remarkable among the list of things recovered was a quantity of Russian and United States money in silver and gold. Found packed in a sewing kit were 60 rubles stacked in piles of 10 rubles each, and 20 five-ruble pieces of gold. In the same box was eighty dollars in American gold and silver. All the gold coins were as bright and untarnished as though they had come from the mint the day before.

Apparently this cash was to be used in case the balloon came down either in Russian or American territory. This naïve phase of the enterprise is reminiscent of a later incident when a

very famous flyer took with him across the Atlantic letters of introduction.

The tragedy, of course, is the thought of these poor men carrying over weary miles across the waste of ice, or in their frail boat along the black leads of open water, the weight of this useless money. A porcelain bowl and the German silver base for a vase were other curious finds, together with Strindberg's almanac, a white shirt in its original packing, a large number of towels, preserves, several packages of letters, and in Andrée's pocket, two tickets to the Stockholm exposition of 1897.

And then the bodies started their long journey home to Sweden.

The early autumn sunset sparkled crisp over Gothenburg on September 27, 1930, when the "Svensksund," the gunboat which thirty-three years before had taken Andrée and his men to Spitzbergen, entered the bay.

At its pier lay the giant "Kungsholm," flagship of the Swedish-American Line, held past her scheduled time of departure for New York in order to pay honor to the "Svensksund" and its

pathetic cargo. Long before the arrival of the navy vessel, the church bells in the city began to chime, the sound rising in clear cadences against the deepening amber of the evening sky. Hundreds of yachts and motor dories, all with the blue and yellow Swedish flag in the stern lapping the backwash from half mast, streamed out of the harbor to meet the "Svensksund." Along the shores thousands of people congregated, and as the dusk gradually fell gas torches, erected for the occasion at the landing stage further up the harbor, were lit to guide the old navy vessel to its pier.

Suddenly the orchestra of the "Kungsholm" placed close by the rail of the promenade deck, struck up the national anthem, "Du gamla du fria" and at once the blunt prow of the "Svensksund" hove into view. Slowly the little gunboat steamed close by the starboard side of the modern motor liner, on which hundreds of passengers stood at the rail with bared heads, silent. The commander on the "Svensksund" faced the larger ship at rigid attention, his right hand at the visor of his gold-braided cap. On the aft deck reposed the three flower and flag bedecked caskets, sur-

rounded by a guard of honor. They had been placed on the exact spot where the three heroes once stood when they saw Gothenburg sink into the distance for the last time.

From Gothenburg the "Svensksund" steamed slowly along the coast towards Sweden's capital. And as the cortége moved through the waters of the narrow sound which separates Sweden and Denmark, the Danes joined with the Swedes in doing honor to the dead explorer. A stop was made at Karlskrona, the Swedish naval base, and then the "Svensksund" proceeded to Stockholm.

Everywhere flags flew at half staff and silent crowds stood in a drenching rain to watch the mournful homecoming on that morning of October fifth.

The "Svensksund" arrived, escorted by two torpedo boat chasers and eight aircraft, and drew alongside a specially erected pontoon bridge, draped in black, with yellow and blue ribbons. On the quay two towers had been erected, topped by silver stars, and here King Gustaf, the nearest relatives of the polar explorers, members of the Swedish Government, representatives of the Norwegian Government, and prominent scientists

awaited the arrival of the coffins. The King was the first to board the "Svensksund."

"In the name of the Swedish people," the King said, "I hail the dust of these polar explorers who, more than three decades ago, left their fatherland to seek an answer to unsolved questions. They went away and disappeared in the distance. Their fate only increased the number of enigmas. However, now at last they have come home."

"Their hopes to win recognition in their lifetime after a successful journey failed. We bow ourselves at their tragic end. Now it is left for us only to express our warm thanks for their sacrifice in the service of science. Peace be with their memory."

The coffins were carried ashore and placed in hearses while a chorus sang Stenhammar's "Sverige." With all church bells tolling the procession marched slowly through streets lined by about 50,000 representatives of various organizations, unions, schools and other grief-bowed witnesses.

The Storkyrkan Cathedral entrance was flanked by two big laurel trees. On arrival there,

the "Svensksund's" sailors carried the coffins into the church, which was brilliantly lighted and decorated with flowers. The Court Orchestra played Beethoven's "Marche Funebre."

Andrée, Fraenkel and Strindberg were home. There remained only to piece together the story of the adventure itself, and its tragic ending.

The Tragic Record

“DON’T touch Andrée’s diary.”

When the Norwegian authorities ordered the return of the “Bratvaag” after Dr. Gunnar Horn’s party had located the relics of the balloon expedition on White Island, the radio messages broadcast to the little hunting steamer stressed that instruction. No one was to see the documents.

Who owned the diary? How should its contents be given out? How best was it to be protected? Such questions as these disturbed officialdom ashore, while the representatives of rival newspapers on their chartered craft were playing hide-and-seek with the “Bratvaag” somewhere to the North, each professionally intent upon buying, borrowing or otherwise acquiring what promised to be an outstanding news story.

But finally, according to the statements of the experts who examined the precious documents, it seems probable that one of the diaries of Andrée

himself has so deteriorated through exposure that its contents cannot be read. If that be so, the major facts of the flight itself, of the heart-breaking journey of the three men across the ice, as well as the true story of the ultimate tragedy at White Island, may never be known.

A curious legal quirk is given to the whole matter by the application of the Swedish law of copyright. Scandinavian authorities have stated that whatever is available in the written records is now public property. Under the Swedish law copyright survives for only twenty-nine years. As the members of the expedition died thirty-three years ago, whatever is left of their writing now may be printed by anyone. Ownership of the documents themselves, which were found on Norwegian territory, reverts to the relatives of the original owners, Andrée, Fraenkel and Strindberg.

To Professors Nils Lithberg, J. G. Anderson and Hans W. Ahlmann were entrusted all the written records.

"Moisture absorbed by the diaries has so softened the pages they are hard to separate," said Professor Lithberg in an interview in the Swedish

papers. "The binding glue also has melted into them. The second Andrée diary in its present state is illegible, but possibly further treatment may restore it. The still-uncertain outlines of the preliminary picture thus far re-created from the other documents, can be filled out only from this second diary. . . .

"For the present there is no possibility of getting any impression of the final act of the drama. We do not have any great hope that we will ever be able to obtain any clear idea of these events, although we have a general feeling in what state of mind their last days were spent. These days we are sure were so occupied that they had no time to make a written record.

"If a new expedition went up next year, we might find some relics, but the details of the final tragedy will not be made any clearer. We must expect that they will always remain in doubt."

His own diaries Andrée packed in straw and an old undershirt which he wrapped in oilcloth and placed at his back. Apparently his last act was to protect as best he could those records which some day might be found. With them sheltered by his body, he settled down to await death. Actually

the books themselves were not discovered until the remains were examined at the Tromsö hospital.

Of Strindberg's four diaries found, one is an account of the 1896 expedition which never got off, the other three consist chiefly of astronomical observations, with a few sporadic notes. Fraenkel, in his diary, has merely logged the meteorological data of the journey through the air and overland. There are two maps drawn to small scale by Strindberg; one of the balloon flight, the other of their journey south.

And that, in written record, is all we have to go by.

Likely enough, as Professor Lithberg has said, we will never know the real story. Even the deciphering of a few matter-of-fact lines a day in a log book would fail to give any adequate picture of what happened.

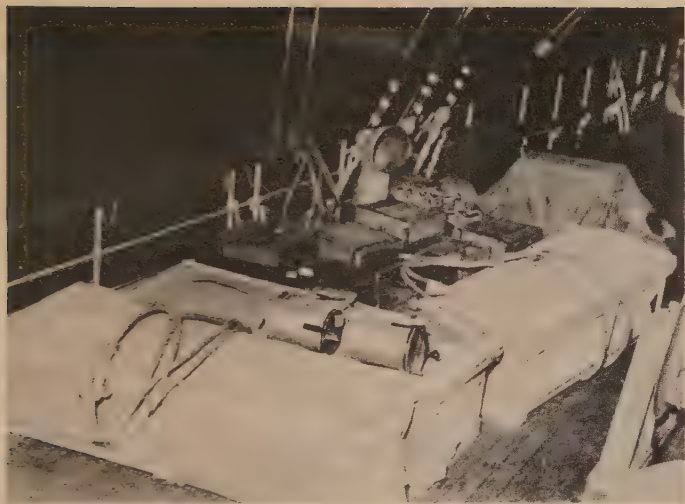
But from the fragmentary written records available, and from the inarticulate evidence of the relics themselves, a reconstruction of the whole pitiful story may be deduced—a story necessarily replete with such words as “probably” and “perhaps,” but still in its essence within the

facts as fate marshalled them. A story, could its true details be known, which would rank beside the epic diary of the gallant Scott's last journey.

"Strindberg! Fraenkel!"

As Andrée speaks their names, the two younger men step into the gondola of the balloon, the leader following them. A last handshake with the men there on the floor of the hangar at Dane's Island on that afternoon of July 11, 1897. Then the ropes are cut and as the great bag rises the three men in the basket emerge from the surrounding walls of the hangar, and, with increasing altitude, see the grey rocks of Spitzbergen and the waste of water and ice that unfolds below them. For the first time man looks down upon the Arctic from the air!

As the "Örnen" lurches uncertainly skyward, the dragging guide-ropes which form the steering device, part two-thirds of their length, unscrewing where they are coupled together. There in the very opening seconds of the flight comes the first crisis. Andrée senses its significance at once. Should he turn back? A decision must be made instantly. There is still time to deflate the balloon. But



Andrée relics on board the "Bratvaag."



The funeral procession in Tromsö.

Photograph from Wide World photos

they release carrier pigeons, each with an optimistic message. And that night, at ten o'clock, Andrée selects a metal cylinder and places it in a paper with a lengthy message, and drops the first buoy.

Once that buoy is dispatched, the leader realizes he has failed to record the location of the ship and so, about an hour later, he follows it up with another message.

July 12th. A sunlight night has passed. The desolation of ice and snow and open water unfolds slowly beneath them. While that wintry "land" looks smooth enough, they know that it is rough going down there—that those patches of blue shadows are made by the pressure ridges piled up in miniature mountains of ice. For all the world, seen from the air, flattens out miraculously; it is only when one gets down close to it that the true roughness may be appreciated.

The wind is still from the south. All goes well. Comparatively well, at least. Perhaps after all they will make those 700 miles that lie between Danes Island and the top of the world. To fly over the Pole! To accomplish what no man before has attempted!

The exhilaration of the adventure still is full upon them. No one of the three will go down into the lower compartment to sleep. There is too much to see and feel—and dream.

July 13th. The wind has veered. They are off their course, no longer moving even approximately north. They do their best to bolster the crippled steering device with trailing ballast ropes to replace the lost cables. The hydrogen valves are hissing ominously, a fact Andrée stubbornly refuses to admit in his diary, although Strindberg is more communicative.

At seven o'clock in the evening again they ward off disaster, by quick action and perhaps a measure of luck. Fire breaks out in the balloon car. It may be someone is awkward in arranging the cooking equipment which was to be hung below the basket. At all events, the blaze is promptly extinguished, the horrible danger of a hydrogen explosion averted.

As the afternoon merges into another night, ice and frost gather on the bag of the "Örnen," weighing her down more and more. That seems to have been a danger ignored by Andrée, although dreaded by modern aeronauts, who now

know that ice forming at temperatures around freezing point offers one of the most dangerous factors in flying.

The "Örnen" is faltering. It may be the weight of the ice, or the lessened lifting power due to loss of gas. More likely it is a combination of the two. At all events, the balloon now flies so low, despite all their efforts, that the basket often drags along the ice, bouncing desperately from one hummock to another. They have thrown overboard all the ballast. The gas valves hiss more and more. Battered and bruised, there is no physical rest for the three men, and no relaxation for their taut nerves.

On that day they send the only carrier pigeon message which was ever received.

July 14th. It is nearly sixty hours since they left Dane's Island. For a day or more there has been no chance whatever to rest, no opportunity to prepare hot food. The balloon flies more and more sluggishly, and it is quite impossible now to keep the gondola off the ice.

And so, that morning, they prepare to abandon the flight. Just at the moment of landing, the balloon rises. The reason for this sudden revival

of buoyancy is not clear. We only know that finally they brought the bag to the ice, opening both rip valves.

At 7:30 in the evening of July 14th, they find themselves on the ice floe. The "Örnen" is down, the adventure of the flight itself is over—though greater adventures may still lie before them. Now they face no problem of exploration but one of self-preservation. They are barely two hundred miles from their starting point, well equipped with the essentials (except experience) for the homeward trek.

Huddled together, there on the ice, with the remains of the stricken balloon beside them, the three men must have undergone a terrible reaction. At least now they have opportunity for rest, and doubtless that night of July 14th they sleep soundly.

Seven days after July 15th were spent in organizing for the return sledge journey. Probably like many an Arctic traveller before them there were discussions as to what to take and what to leave, the poundage of each item being weighed against its usefulness. Sometimes common sense won. Sometimes sentiment. That we know from

the relics found on White Island. Some, at least, of the paraphernalia carried should have been abandoned at the beginning of the journey. Whether or not those useless added pounds made any difference in the ultimate result, no one can say.

On the afternoon of July 22nd they start their return journey, having wasted, or at least consumed, five days preparing for it. In such a predicament days lost may be costly, especially towards the end of the Arctic's last summer month.

Whether or not they were wise or unwise in this delay, it seems little short of suicidal that they did not set their course straight for the north coast of Spitzbergen, where were three supply depots waiting, the nearest on the Seven Islands. But instead of moving southwest they attempted to make their way eastward to Fridtjof Nansen Land.

About this decision all the diaries are reticent. Perhaps it was dictated by personal pride, by a determination not to admit entire defeat. They had guns, ammunition, equipment. Perhaps it was Andrée's last sacrifice to science and to egotism.

Returning from the abandoned flight in 1896 he had pointed proudly to the research work done by members of the "Virgo" party. "The trip was not entirely without results," he had said. Perhaps once again he sought to salvage something—some record of new goals won which would soften the pangs of defeat and turn aside the barbs of criticism.

Slowly the doomed men toil eastward, encountering perpetual difficulty with pressure ridges and broken hummocks, deep pools of fresh water on the surface, and open leads between the ice, which they cross with the aid of their canvas boat. The distances covered vary greatly, but at most they amount to only a few miles a day. The astronomical notes show that the drift of the ice towards the west was too powerful for them.

There is little from which to reconstruct the story of those last days of July. On the 27th we note that they abandon about 220 pounds of baggage. On August 1st they are more cheerful. "Good march" is set down in Strindberg's diary. On that day they made 8 kilometres or about five miles—five miles in the wrong direction. And on August 2nd is recorded a march of "two miles,"

probably computed in the Swedish system, which would equal about twelve and a half English miles.

Finally, on August 4th, when they had been marching for some thirteen days, defeat is admitted. They decide to abandon further exploration to the eastward, and make the belated attempt to reach the Seven Islands off Spitzbergen. On starting the new march they are in Lat. 82:7 N. and Long. 22:43 E. This is roughly sixty miles west and slightly south of the point where they had come in the balloon.

In the thirteen days on the trail their provisions have run low. The supply salvaged from the balloon's gondola has been eked out by chance kills of polar bear—"The wandering meat shops of the Arctic," Andrée calls them in his diary. With each successful kill the prospects brighten and their hopes renew. But there comes a time when there are no more bears, and the weakening effects of half rations are felt. Day by day the struggle onward seems more difficult, as one after another falls into pools and flounders in the snow-filled crevasses.

Inspired by their leader, despite the fatigues



Where the relics were found on White Island.

Copyright by The Associated Press

and terrors of the trail, the party's morale remains excellent. Andrée, himself, continues conscientiously to fill his diary day by day with scientific observations. Not only this, but when every ounce of extra weight must have added to the difficulties, he collects samples of clay and moss and drift-wood picked up on the ice, considering them important in future study of polar drift.

On the 11th of August, the 82 degree of Latitude is passed. They had come southward a degree and 14 minutes of latitude, or about seventy miles in a straight line; but of course far further as they were forced to travel.

Between September 12th and the 17th, the ice probably drifted the hapless explorers in an east-southeast direction, steadily bearing them away from the food depot. Meantime autumn is at hand; the days are growing shorter and shorter, and the cold becoming increasingly bitter. Of this period the diaries tell us little. In their hopeless drift they are apparently resigned to a winter of isolation and as some protection they set out to build what they call an "ice cot."

At last, on September 17th, they sight the ghostly mountain peak of White Island, the first

land they have seen since flying from Spitzbergen on July 11th, which in his diary Andrée calls "New Iceland." In their joy they make an Arctic festival, as strange a celebration as one can imagine. The menu, as Strindberg sets it down, consists of "seal steak, seal liver, seal brains, seal kidneys, butter, and Swedish bread, *gateaux aux raisins*, with raspberry sauce, and port wine for dessert." The wine was of the vintage of 1836, the gift of Oscar II. With it they drink a toast to the King, singing the national anthem and unfurling the flag.

The sighting of land seems to bring them good luck in hunting. On the next day they kill a seal and on September 19th they bag three more, and on the following day contrive to kill a polar bear. The increased food supplies send their spirits soaring. Andrée's diary notes the stroke of good fortune and estimates that his little band has sufficient food to last until the winter following.

Those days they spend working further on their shelter, a veritable ice cabin, which they call "The Home."

But scarcely are they installed in comparative

security when sudden disaster descends upon them. Without warning the ice floe breaks up and "The Home" is smashed to pieces while provisions, equipment, and instruments are scattered in the water and over the shattered ice. They dive after their precious possessions and in a desperate scramble, half frozen, exhausted, and heart-broken, they retrieve what they can and somehow contrive to reach the shore of White Island.

"With such companions" Andrée writes, "Everything will go on all right under almost any circumstances."

"Resignation." That is the last entry in Strindberg's diary, on October 6th.

By then, probably, they are on White Island, fashioning as best they can their last camp. How the end came no one knows. Apparently Strindberg died first. At least his body was found partially buried, evidently by the hands of his companions.

As Dr. Horn's party found that last camp, it appeared that the shelter itself was incomplete; or if once completed and occupied it subsequently had been partially destroyed. And then, too, the canvas boat was on the sledge, as if just arrived

from a journey, while the camping paraphernalia was scattered about not at all as if death had come to them while occupying an established camp.

Curious, too, is the fact that there were food and fuel, and arms, and ammunition. Actually there was oil in the Primus stove found thirty-three years later, the stove itself, despite the long exposure, still working perfectly.

We can perhaps believe that Andrée and Fraenkel, after poor Strindberg's death, had put off with their sledge and boat in a last despairing effort to work back to Spitzbergen. Death in action was better than helpless inertia.

They struggled perhaps only a few miles eastward. It may have been a few days or possibly only hours. Their food was almost gone, and their strength too. We know that they had been desperately ill. Surely their physical weakness must have been pitiful. Perhaps a storm arose and drove them back. Or the current moving the ice against their course may have been too much for them. Always over their shoulders could they see the mountain of White Island. And finally, driven back into its very shadow, they crept

"home" to the camp where they had left the body of their companion.

With the last ounce of their strength they pulled the sledge and boat to the shore. The cold was desperate, their exhaustion complete. While they were gone perhaps the storm which had defeated their escape also destroyed the shelter. Fate seemed overwhelming. There was no use fighting further—no strength with which to fight.

So Fraenkel crawled into the sleeping bag, while Andrée propped himself among the rocks. And each calmly, perhaps almost happily, waited for the merciful cold to bring the relief of everlasting sleep.

Authentic
Interesting
Instructive
Fairly well written.

This book was set in 12 point Original Old Style
on the linotype, printed and bound
by J. J. Little & Ives Co.,
New York.

